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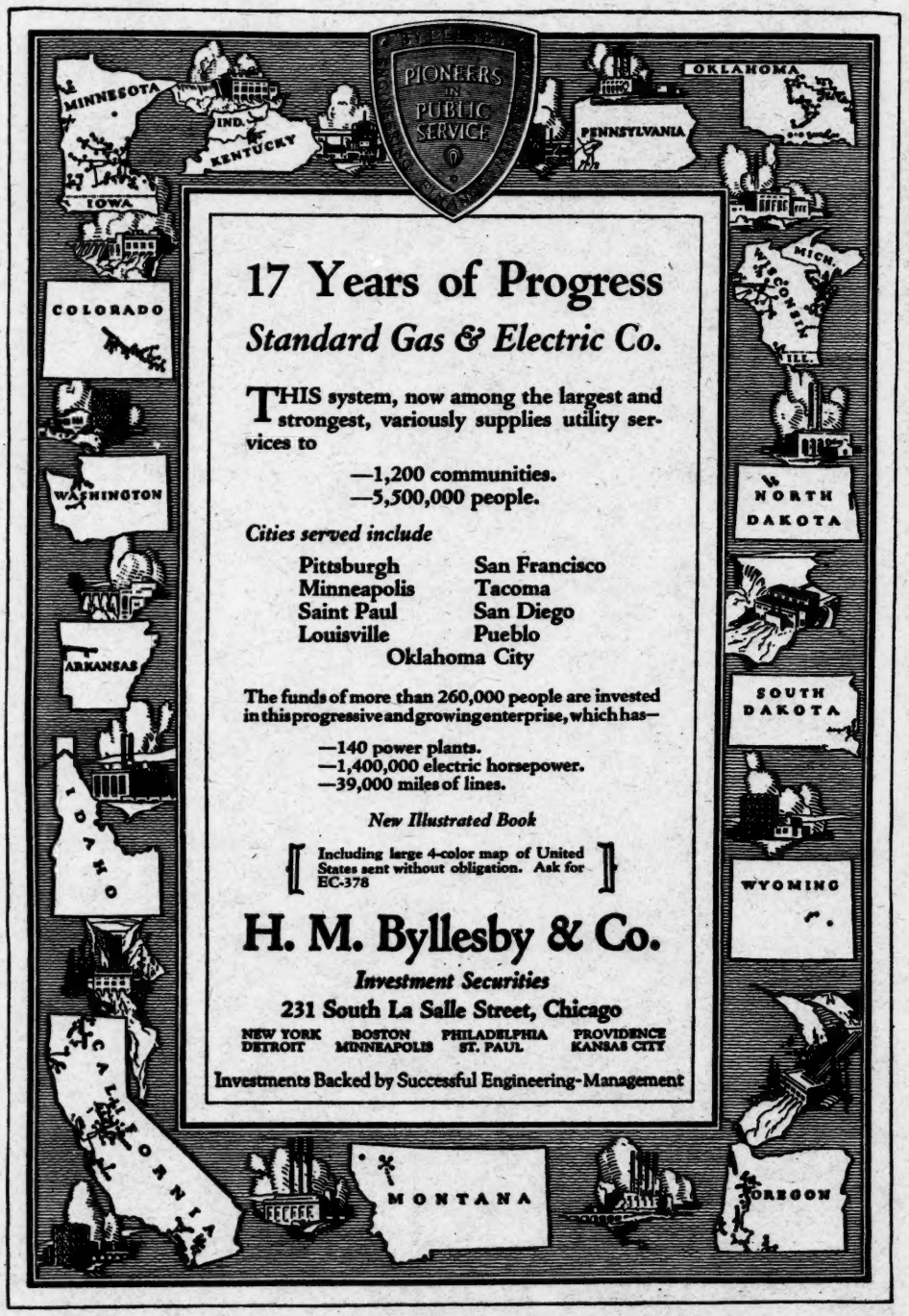

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HYDRO-ELECTRIC POWER POLICIES IN ONTARIO AND QUEBEC[1]

By HARALD S. PATTON

III

Quebec's Water Power Policy

HAVING considered in the preceding part of this article the economic background of hydro-electric power development in eastern Canada, and the history of Ontario's policy of cooperative public ownership and operation under its provincial Hydro-Electric Power Commission, we may now turn our attention to an examination of the policies and methods pursued in the development and utilization of the water power resources of Quebec. The comparative experience of these two neighboring provinces will be found to suggest certain conclusions as to the merits and limitations of their respective power policies and systems.

[1] EDITORIAL NOTE: The first installment of Professor Patton's article appeared in the *Journal* for May, 1927.

At the close of the World War the magnitude of water power development in Quebec was considerably less than that in Ontario. Since 1922, however, the rate of expansion has been much more rapid in the former province. At the end of 1926 the total hydro-electric primary installations in Quebec amounted to 1,914,328 h.p., compared with 1,790,588 h.p. in Ontario. Quebec, moreover, possesses much greater latent power resources. The definitely established available water powers (at ordinary 6 months' flow) are officially reported as equivalent to 11,640,052 h.p., while Ontario's hydraulic resources are estimated at 6,808,190 h.p. Furthermore, while the most important powers available to Ontario are situated in boundary waters, the economic water powers of Quebec are all tributary to the St. Lawrence system and, with the exception of those on the inter-

provincial section of the Ottawa River, lie wholly within the province.

In Quebec public policy has followed lines distinctly different from those pursued in Ontario. Public ownership sentiment has never been very articulate in the French province, and government enterprises and controls have generally been more restricted than in the English-speaking provinces to the west of the Ottawa. This has been due in part to the parochial character of French-Canadian institutions, and to the fact that paternalistic and public welfare activities have been largely carried on by the Roman Catholic Church rather than by the state. The Quebec government has never been called on to meet the insistent public ownership demands of associated "hydro" municipalities as in the Upper Province. On the other hand, it has been subject to the concentrated influence of powerful Montreal financial interests, and to the pressure of large-scale corporations for water power concessions. Moreover, water power development in Quebec has been closely associated with the pulp and paper industry, which is most concentrated in the St. Maurice Valley, midway between Montreal and Quebec; whereas in Ontario the great natural power monopoly of Niagara Falls dominates a broad belt of urbanized counties containing a large number of relatively small-scale power consumers.

The Quebec Streams Commission

When the economic possibilities of Quebec's hydraulic resources began to attract attention at the end of the last century, the government was ready to offer every inducement to encourage development by private capital. This was reflected in the charter granted in 1898 to the Shawinigan Water and Power Company, whereby absolute ownership of the magnificent water power site at Shawinigan Falls,[2] including 1,100 riparian acres, with perpetual right to the use of the hydraulic power developed therefrom, was conceded to the company. As applications for similar concessions became frequent, the government was led to modify its water power policy in the interests of conservation and control. During the last decade and a half the policy has been to substitute long-term, conditional leases for absolute grants, or to offer leasing rights at competitive rentals, with a stipulated "upset" figure; and to require in addition the payment of royalties—generally at the rate of 50 cents per horse-power—on the energy actually developed. The terms of lease also call for the initiation and completion, within specified periods, of development works under plans approved by the Hydraulic Service of the Department of Lands and Forests. With a view to insuring that the power so developed shall be primarily utilized within the province, recent leases generally require the payment of an additional royalty of 50 cents per horse-power on any power exported.[3]

As a means of facilitating the development of the water powers of the province upon a conservational basis, the Quebec Streams Commission was created in 1910.[4] Its functions are to make studies of stream flows, conduct

[2] At this point the St. Maurice River descends 150 feet towards the St. Lawrence, affording a potential development of 647,000 h.p.

[3] This is not being applied to the export of Gatineau power to the Ontario Power Commission.

[4] Under 1 Geo. V., c. 5, with additional powers under 3 Geo. V., c. 6.

surveys of water power and reservoir sites, and, with the approval of the government, to undertake the construction and operation of control dams and storage reservoirs. The commission has built such works on the headwaters of the St. Maurice, where the great Gouin Dam and the Manouan regulating dams serve to maintain a 16,500 second-feet flow, insuring continuous generation at high efficiency by the privately owned power plants at Grand' Mère, Shawinigan, and La Gabelle. Similar control dams have been installed at the outlets of Lake Kenogami discharging into the Saguenay, and of Lake St. Francis, from which issues the principal right-hand tributary of the St. Lawrence.[5] Power and paper companies benefiting by the uniformity of flow thus assured are required to pay annual dues to the commission according to the amount of water used. Similarly, a toll is levied on logging companies for driving privileges and sluicing services through dams. The rates charged are calculated to cover operation, maintenance, depreciation, interest, and amortization on the outlay, which at the end of 1925 amounted to $9,113,573.[6]

Private Power Companies in Quebec

While the province has thus generally retained the ownership of its water powers and regulated their utilization by engineering as well as by legislative and administrative control, the actual development and supply of power have been conceded entirely to private corporations (with the exception of a few small municipal plants). Two types of power companies occupy the field. The first are subsidiaries of pulp and paper companies which, in order to obtain the most economic utilization of leased power sites, have installed works capable of generating power largely in excess of the consumption requirements of their mills, the surplus energy being sold under contract to power distributors. Thus, the Laurentide Power Company, in developing the Grand' Mère power site on the St. Maurice to its maximum capacity of 186,000 h.p., has contracted to deliver to the Shawinigan Company all the output in excess of the 37,500 h.p. reserved for the Laurentide Paper Company. While the Duke-Price development at Isle Maligne on the Saguenay was undertaken primarily with a view to supplying the needs of the Aluminum Company of Canada and Price Brothers paper mills, a contract has been made for the disposal of 100,000 h.p. to the Shawinigan Company.

The second type consists of public utility power companies supplying municipalities, traction systems, and industry in general. Here the outstanding examples are the Montreal Light, Heat, and Power Consolidated, and the Shawinigan Water and Power Company. The former is essentially metropolitan in its sphere of operations; whereas the latter is a generator and wholesale distributor of power on a provincial-wide basis. The history of both these companies illustrates conspicuously the tendency towards consolidation, holding company organization, and community of interest in the public utility field.

Montreal Light, Heat, and Power Consolidated is a unifying and guaranteeing corporation, owning and operating the Cedar Rapids Power and Manufacturing Company and the Montreal

[5] The control works at the Grande Décharge of Lake St. John into the Saguenay River have been constructed by the Duke-Price Power Company, under the supervision of the commission.

[6] *14th Report*, Quebec Streams Commission, 1925.

Light, Heat, and Power Company. The last-named company is itself a consolidation of no less than 10 different power, light, and gas companies, developing St. Lawrence and Richelieu River water powers or holding various franchises on Montreal Island. By corporate integration the controlling company has thus acquired a combined monopoly of water power developments in the vicinity of Montreal, and of the supply of electric light, power, and gas in the Montreal metropolitan district.

The Shawinigan Water and Power Company was the pioneer in large-scale hydro-electric development and transmission in Canada, and has influenced to a far-reaching extent the localization and expansion of the industries of the province during the last quarter-century. The grant by its charter in 1898 of absolute ownership of the strategic water power site of Shawinigan Falls, lying midway between Montreal and Quebec and dominating the lower St. Maurice Valley, gave the company an initial advantage which it has pursued to the extent of becoming the world's fourth largest distributor of electricity. In 1925 it supplied over 2 billion kilowatt hours to 160 municipalities. By direct development or acquisition it has come to control most of the central hydro-electric generating plants on the north side of the St. Lawrence from the Ottawa to the St. Anne River below Quebec. On the south side its transmission system brings St. Maurice power across the St. Lawrence into the asbestos mining district, and by interconnection with its power houses on the St. Francis River, extends through the rising manufacturing municipalities of the eastern townships almost to the international boundary. In anticipation of future needs, this company is pushing its transmission line to the Upper Saguenay to make available the 100,000 h.p. for which it has contracted with the Duke-Price Power Company, in which the Shawinigan Company holds a substantial investment interest.

Integration has extended into the field of power distribution and utilization as well as of production. Thus, Shawinigan's subsidiaries include urban systems, such as the Quebec Power Company, itself a holding company operating five hydro-electric plants and merging all the public utilities in the city and district of Quebec; regional distributors such as the North Shore Power Company and the St. Francis River Water Company; electric railways like the Three Rivers Traction Company; industrial consumers such as the Canadian Carbide Company and the Canadian Electro-Products Company, which with the Aluminum Company of Canada have made Shawinigan Falls one of the leading electro-chemical centers in the Dominion.

Montreal "Power" and Shawinigan, besides each representing in itself a high degree of consolidation and centralization, are also closely affiliated with one another. The former has a contract with the latter as the exclusive distributor of Shawinigan power transmitted to the Montreal district. Not only is the Shawinigan Company an extensive owner of Montreal "Power" stock, but the two companies also jointly control the United Securities, Limited, a recently organized holding company controlling the Montreal Tramways Company, with its valuable franchise, and the Quebec–New England Hydro-Electric Company. Thus, under a diversity of corporate names, the production and distribution of the greater part of the power generated in

central electric stations in Quebec is controlled by a small group of Montreal financiers.[7]

IV

Comparison of Ontario and Quebec Systems

From the foregoing survey it will be seen that in both Ontario and Quebec the hydro-electric power industry as a public utility has become an integrated monopoly. In Ontario the concentration in the hands of the Hydro Commission is established on a statutory basis—a partnership between municipalities, financed and supervised by the province. In Quebec the concentration has been effected by various corporate devices, without provincial financial responsibility, and yet with the general concurrence of the government.

Concentration through corporate amalgamation and holding company organization is simply an indirect means of attaining the potential economies and advantages afforded by a public monopoly in power supply. The Shawinigan-Montreal "Power" combination in Quebec has been quite as able as the Ontario Hydro-Electric Commission to realize the technical advantages of large-scale and coordinated engineering development, of standardized equipment, and of interlocking circuits and pooling of loads; the economies of centralized purchasing, construction, operation, accounting, and publicity; the distribution of fixed costs over a large and assured power output; and the capacity to attract to their service superior engineering, financial, and legal ability. Through stock control of distributing companies, urban utilities, and electrochemical industries, the Shawinigan Company is assured of a continuous outlet for its power, to a degree comparable to that enjoyed by the Ontario Power Commission through its relations with the "hydro" municipalities. Through refunding bond issues and guaranties by holding corporations, secured by the combined revenues and assets of the constituent companies, risks are pooled and reduced to investors, so that it is able to secure capital on only slightly less favorable terms than the government financed and guaranteed Hydro Commission. A comparative estimate of the power policies of Ontario and Quebec involves, therefore, a consideration of the relative merits of publicly owned and privately owned super-systems.

Comparative Efficiency

While it is difficult to obtain a satisfactory basis for comparing the efficiency of the two systems, the data in Table I, compiled from the Dominion Bureau of Statistics census of the Central Electric Station Industry in Canada for 1924, afford certain suggestive criteria.

Judged by the above indexes, electricity is supplied much more economically in the province of Quebec with its commercial utilities than in Ontario with its public ownership system. These figures cannot be taken, however, as direct measures of the relative efficiency of the two systems, inasmuch as physical conditions and the character of the service supplied are not identical in the two provinces.

1. Whereas in Quebec water powers of extensive capacity are located close

[7] Sir Herbert Holt, Sir Lomer Gouin (former premier of Quebec) and J. E. Aldred are directors of both Montreal "Power" and the Shawinigan Company.

to the larger centers of population,[8] Niagara Falls is the only major water power site adjacent to the municipalities of southwestern Ontario. Thus the capital invested in transmission lines in the latter province is more than twice as great as in Quebec.

2. Whereas outlays on storage dam constructions by the Quebec Streams Commission do not enter into the capital investment shown in Table I, the entire cost of the Queenston-Chippawa power canal, exceeding $55,000,000, is included in the capital invested in generation by Ontario's public system. At the date of the above statistics, only six of the nine 55,000 h.p. generating units served by this development had been completed. Thus, with a relatively slight increase in the initial investment, 165,000 h.p. have been added to its effective capacity, thereby appreciably reducing the average investment per horse-power.

3. Another significant factor is the utilization of the power generated in the two provinces. Only a very slight proportion of the energy supplied by the Ontario Hydro System is used in the pulp and paper, or the mining and metallurgical industries, which are chiefly located in New Ontario, where, apart from the commission's Thunder Bay System, power is developed entirely by private corporations.[9] In Quebec, on the other hand, one-third of the power revenue of the Shawinigan Company is derived from the pulp and paper indus-

[8] Montreal is favored by adjacent water powers in the St. Lawrence, Ottawa, and Richelieu rivers; Quebec has five large hydro-electric power stations within a radius of 25 miles; while Shawinigan Falls is but 20 miles from Three Rivers.

[9] Consolidation and holding company organization have developed in the privately owned power industry of Northern Ontario in much the same manner as in Quebec. Thus the Canada Northern Power Corporation controls, through stock ownership, the Northern Canada Power Company, the Northern Ontario Light and Power Company, and

TABLE I. DATA ON COMPARATIVE EFFICIENCY OF ELECTRIC STATIONS IN QUEBEC AND ONTARIO

	Commercial Stations, Quebec	Municipal Stations, Ontario
Number of generating stations	68	24
Stations buying power for distribution	25	276
Total number of central electric stations*	93	300
Population served per station	13,694	4,417
Main primary horse-power	935,583	912,450
Capital invested		
Generation	$102,242,693	$127,664,462
Transmission	22,028,052	48,219,015
Distribution	21,829,711	48,543,058
General	10,452,160	25,657,057
Total investment	$156,552,616	$250,083,592
Capital per h.p. developed	$168	$275
Total k.w.-hours generated	3,685,970,000	2,887,860,000
Ratio output to maximum capacity	58.4%	55%
Net revenue	$20,011,968	$25,850,587
Revenue per k.w.-hour generated (in mills)	5.5	8.9
Number of employees	2,592	5,109
K.w.-hours generated per employee	1,420,000	560,000

* For census purposes a central electric station is defined as a "municipality, company, or other organization selling electricity" whether generated or purchased by itself. Power commission generating stations are classed as "municipal."

try, and one-quarter from mining, electro-chemical, and electro-metallurgical industries, chiefly in the St. Maurice and St. Francis valleys.[10] Where power is thus supplied in large blocks to industrial consumers located close to power sites, the investment in transmission and distributing systems, and the personnel employed, are relatively slight. On the other hand, the power supplied by the Ontario Hydro Commission is utilized chiefly for general manufacturing, municipal lighting and traction, domestic and rural purposes, involving much higher distributing and operating costs in relation to the energy supplied. Quebec's commercial stations in 1924 supplied 282,570 customers, while the Ontario Hydro System served 448,981 consumers.[11] In the language of economic text-books, electricity is much more widely used as a consumers' good in Ontario, in which village streets and farm houses enjoy lighting and service facilities on a par with city streets and urban homes.

The Murray-Flood Report,[12] made for the National Electric Light Association in 1922, strongly criticizes the policies of the Ontario Power Commission in respect to the Nipigon and Queenston-Chippawa developments. With regard to the former, Mr. Murray says:

> In reviewing the situation, I am unable to escape the conclusion that there were no economic grounds justifying the construction of the Nipigon works. The capacity developed on the Nipigon River, plus that available from the Kaministiquia Power Company, provides the people of the Thunder Bay district with 3 h.p. per capita. This is five times the per capita capacity available from all sources, private or governmental, to the people on the Niagara Power System.[13]

Elaborate data are presented[14] to show that sufficient power for the needs of the district could have been obtained by a continuation of the commission's contract with the Kaministiquia Power Company, provided the latter had been permitted to develop the available water power resources of the Kaministiquia River. Events, however, have served to justify the foresight of the commission in undertaking the development of the Cameron Falls power site on the Nipigon River, enjoying as it does the advantage of the magnificent natural storage of nearly 5 million acre-feet afforded by Lake Nipigon, without requiring any initial regulating dam. Inasmuch as the greater part of the load

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the Porcupine Power and Telephone Company, as well as leases the properties of the Great Northern Power Corporation (all operating in the Temiskaming–Upper Ottawa metal mining and pulp area). The Canada Northern Power Corporation is now controlled, in turn, by the Power Corporation of Canada, a new public utility holding and investment company with a controlling or investment interest in power companies in four provinces.

[10] The power earnings of the Shawinigan Company in 1925 were derived from the following sources:

Pulp and paper companies	32.4%
Montreal Light, Heat, and Power, Consol.	20.6
Retail distribution companies	17.3
Asbestos mines	9.6
Aluminum Company of Canada	9.4
Canada Carbide Company	5.0
Miscellaneous manufacturers	5.6

[11] *Report of Central Electric Stations in Canada*, 1924, p. 22.

[12] On *Government Owned and Controlled Compared with Privately Owned and Regulated Electric Utilities in Canada and the United States.* Nearly 85% of the contents of this 223-page report deals with the Ontario Hydro-Electric System. The value of the report is marred by the fact that, whereas the data supplied by the commission are reproduced in great detail, the sources of data regarding private electric utilities in Canada and the United States are only meagerly indicated or given as "confidential." The criticisms in the Murray Report were vigorously answered and many of the facts challenged, in a *Refutation* published by the commission in 1922.

[13] Murray-Flood *Report*, p. 15.

[14] *Ibid.*, Part II, Sec. G.

is supplied to pulp and paper mills (usually on a 24-hour basis) and to lakehead terminal grain elevators—industries in which the power consumption per employee is unusually high—a much greater horse-power capacity per capita is to be expected in the Thunder Bay System than in the Niagara System, where a large proportion of the population is agricultural, and where manufactures use power on a much smaller scale than the basic industries characteristic of New Ontario. By 1925 the demand for power in the Thunder Bay district had increased to such proportions as to necessitate the installation of additional generating units, bringing the capacity of the Cameron Falls plant to the full 75,000 h.p. originally planned, and to call for the early undertaking of further developments on the Nipigon River.[15] It is true that the cost of Nipigon power during the period of construction and early small-load operation was somewhat higher than the contract rate at which power was supplied to the commission by the Kaministiquia Company. The commission, however, is now distributing several times the amount of power which that company could have furnished to it, even with the full development of the Kaministiquia resources. The building up of the Nipigon load permits reduction of the cost of power to Port Arthur consumers, and the city of Fort William, formerly supplied by the Kaministiquia Company, has within the past year been added to the community of "hydro" municipalities.

Of the Queenston-Chippawa development, the construction of which was carried on throughout the war period, Mr. Murray says:

> This report would lack in point of constructive criticism not to refer to the policy of this procedure. With the costs of labor and material mounting to unheard-of figures, with the efficiency of labor at its lowest, and with the magnitude of the undertaking making it impossible to complete construction to promptly meet war demands, as evidenced by the first unit having only recently gone into operation, I cannot escape the conclusion that this policy was wrong and that the burden of its costs must now be felt in a very material increase of cost to the municipalities of Ontario for many years.[16]

The cost of the Queenston-Chippawa development is indeed much the largest single item in the capital investment of the Ontario Hydro System, and its inclusion is responsible to a large extent for the disparity in the "capital per developed horse-power" between points in Ontario and Quebec. The period of greatest physical expansion in the Ontario System was between 1916 and 1921, whereas in Quebec during the same period hydro-electric development showed practically no per capita increase.[17] The principle of supplying power "at cost" was itself largely responsible for the great increase in the power demands of municipalities in Ontario during these years, intensified as it was by the pressing power requirements of the war industries. The Chippawa project, which had been contemplated before the war, was launched early in 1917 when the duration of the world conflict and the post-bellum inflationary conditions could not be foreseen. Instead of suspending construction operations after the Armistice, it was decided, in view of the speedy reabsorption of the war-load by Niagara municipalities, not merely to prosecute the Chippawa project, but

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[15] *18th Annual Report,* Ontario Hydro-Electric Power Commission, 1925, p. XV.

[16] Murray-Flood *Report,* p. 15.

[17] Murray-Flood *Report,* p. 51.

also to increase its capacity and efficiency by a far-reaching change in engineering plans. The situation at Niagara was peculiar. Until the power canal was completed, not a single additional horse-power could be developed by the commission from the Niagara River. Meanwhile, it was becoming increasingly dependent upon day-to-day contracts with private power companies on both sides of the river for additional supply aggregating 90,000 h.p. by 1921. On the purely financial side, to have deferred completion would have meant the payment of continuing interest charges on the earlier capital expenditure without bringing any nearer the realization of any revenue therefrom. The full load of the first two generating units was almost immediately absorbed, and within four years the full capacity of the development was in commercial use, and a power shortage in prospect.

In view of these considerations and results, it would seem that greater foresight and long-run economy was shown in proceeding with the work on an enlarged scale, despite the difficult and costly construction conditions, rather than either deferring it to an uncertain future, or carrying through the original plans and then being obliged to reconstruct the work at a future date. The undertaking necessarily involved an appreciable increase in wholesale power rates for the time being. It is misleading, however, to draw the conclusions which Mr. Murray suggests by comparing the cost of Chippawa power in 1922 with that of the inadequate Ontario Power Company plant constructed in 1903.[18] Quite apart from changes in the purchasing power of the dollar, it has to be recognized that new large-scale power development necessarily means increased capital costs per unit during the period of construction and initial operation, with diminishing costs as the capacity of the development is realized and the load is built up. In the case both of the Nipigon and Queenston-Chippawa developments, the latter phase has been entered upon within a remarkably short time. And in both systems the embarrassments of a power shortage have been successfully anticipated.

Such considerations of environment, policy, and service impose far-reaching qualifications upon conclusions as to the relative efficiency of the Ontario and Quebec power systems, derived from mere juxtaposition of investment and production statistics as presented at the outset of this section, and from such statements as those referred to in the Murray-Flood *Report*. It is not to be forgotten, however, that over-eager tendencies on the part of "hydro" enthusiasts to extend facilities and to take over private utilities, and the somewhat dangerous ease with which capital has been made available through the provincial treasury, have caused certain commitments to be more lightly assumed and certain outlays to be higher than would probably have been the case if the undertakings had been in the hands of private concerns. The Gregory Inquiry Commission, which was appointed in 1922, expressed itself upon this point in the following emphatic terms:

> From the beginning the question of cost seems to have been very lightly regarded by the commission. It obtained and spent money far too easily. It lacked the steadying influence of financial responsibility which is always

[18] Murray-Flood *Report*, Part II, Sec. F; see also *Refutation* of Ontario Hydro-Electric Power Commission, pp. 37-42.

present when those who construct work have to provide the funds.[19]

The construction work, as well as the designing of the Queenston-Chippawa development was carried out by the commission itself, because, it was stated, "no general contractor could be found to undertake the work under the uncertain conditions imposed by the war."[20] Whether or not the development could have been more economically executed, or the same engineering results been obtained, by letting contracts, it is impossible to say. The actual cost was appreciably increased, however, by rushing the work to completion under double-shift and overtime conditions, primarily in order that the commission might terminate its dependence upon power contracts with the Electric Development Company, and be in a more favorable position in concluding, along with the city of Toronto, terms of acquisition of the Mackenzie utilities, whose Toronto Street Railway franchise was expiring in 1921.

In 1916 the provincial government, under pressure from the commission and municipalities in central Ontario, purchased at a cost of $8,350,000 from the Electric Power Company, which owned or controlled the stock of 22 subsidiaries, a group of utilities which were turned over to the commission to operate in trust for the government. These properties, which are now known as the Central Ontario and the Nipissing systems, were operated until recently at a loss, and no provision has so far been made on account of sinking fund. They include, in addition to hydro-electric works, such miscellaneous assets as three gas plants, a water works, a street railway, a pulp mill and pulpwood limit, all of which the commission has continued to operate itself, mostly at a loss.[21] The sums derived from certain properties which were sold or scrapped amounted to $171,395 less than their book value.[22] Large new investments, coordination, and the enlargement of the market (which now includes 37 municipalities and 24 companies) have placed these systems on a much sounder basis. The commission, however, has been distinctly handicapped, and its customers burdened by the terms of overhasty acquisition.

The history of the Ontario Hydro System shows, on the whole, that its relatively high capitalization has been due rather to heavy costs of construction than to acquisition of privately owned utilities at inflated prices. The late Sir Adam Beck, indeed, was noted for his close bargains with such concerns, whose assets, particularly in the Niagara district, were generally acquired under conditions where the actual or potential competition and the rate-controlling powers of the commission had appreciably affected the market value of their stock.[23] The high investment cost of constructed works is the joint result of abnormal prices for materials and labor during the period

[19] Cited by S. S. Wyer, "Salient Findings of Royal Commission Appointed to Investigate Governmentally Owned Hydro-Electric Systems in Ontario," Sec. 12.

[20] Murray-Flood *Report*, p. 129.

[21] *18th Annual Report*, Ontario Hydro-Electric Power Commission, pp. 213-217.

[22] Gregory Commission *Report*, cited by S. S. Wyer, *op. cit.*, Sec. 29.

[23] This, indeed, is one of the principal criticisms leveled against the commission by Professor Mavor in his *Niagara in Politics*. Except in a single minor case, the commission has never exercised its power of expropriation, although up to 1922 it had purchased 20 water powers, 30 hydraulic generating plants, and over 60 electric distribution systems. *Refutation* re Murray-Flood *Report*, p. 14.

of greatest physical expansion; of changes in engineering plans which, though costly, resulted in the creation of plants of high efficiency and capacity to meet future requirements; and of a certain laxity of scrutiny in respect to cost where financing took the form of requisitions on the provincial treasury. While the system of treasury advances has perhaps caused the capital cost to be somewhat higher than if the commission had been compelled to find its own money, it has very considerably reduced the cost to the commission of borrowing capital. Instead of being obliged to pay underwriters' commissions and interest on its own bonds from date of issue, the commission has had to meet interest only on actual advances as received from the treasury, and that at a rate equivalent to the government's own cost of borrowing.

Comparative Costs of Power

From the standpoint of public interest, the real test of the relative efficiency of the Ontario and Quebec systems is to be found in the rates charged for similar kinds of service. Quebec companies, it has been seen, have the advantage of lower investment and operating costs in relation both to capacity and output. With much smaller bonded indebtedness in proportion to assets, interest and sinking fund obligations also fall much more lightly. The Ontario Hydro, on the other hand, has an advantage to the extent that it is exempt from taxation. Leaving aside special contract rates with large block power consumers (for which figures are unobtainable, but in which the advantage probably lies with Quebec for reasons already explained), the scheduled rates charged in Ontario "hydro" municipalities are appreciably lower than those in Quebec under similar conditions of service. The current rates charged respectively by the Montreal Light, Heat, and Power Consolidated and the Toronto Hydro-Electric System afford a fair basis of comparison (Table II).

TABLE II. COMPARATIVE RATES FOR VARIOUS CLASSES OF ELECTRIC SERVICE IN QUEBEC AND ONTARIO, 1927

Service	Montreal Light, Heat and Power		Toronto Hydro-Electric System	
Domestic lighting and cooking				
Per kilowatt-hour	4c		2c (first 3k. w.-hr. per 100 sq. ft.). 1c (all additional usage)	
Service charge per month	15c		3c (per 100 sq. ft.)	
Commercial lighting	*Gross*	*Net*	*Gross*	*Net*
First 2,000 k.w.-hour usage per month	4c per k.w.-hr.	3.5c		
Excess 10,000 k.w.-hours	4c per k.w.-hr.	2.5c		
First 70 hours per month			4c per k.w.-hr.	3.6c
Next 70 hours per month			2c per k.w.-hr.	1.8c
All additional			1c per k.w.-hr.	0.9c
Power				
Service charge	$15 per h.p. per annum for first 15 h.p. connected load $12 per h.p. per annum for all additional load		$15 per h.p. per annum for first 10 h.p. $12 per h.p. per annum for all additional h.p.	
Meter rate (5-100 h.p.)				
First 50 hours per month	2c per k.w.-hr.		1.5c per k.w.-hr.	
Second 50 hours per month	1c per k.w.-hr.		0.75c per k.w.-hr.	
All excess usage	1c per k.w.-hr.		0.40c per k.w.-hr.	

TABLE III. COST OF ELECTRIC SERVICE TO HYDRO MUNICIPALITIES IN ONTARIO*

Domestic Service†—Proportion of total kilowatt-hours sold in municipalities where average inclusive charge to consumers is:	
Less than 2 cents per k.w.-hr.	83.0%
2.0 to 3.9 cents per k.w.-hr.	15.0
4.0 to 6.9 cents per k.w.-hr.	1.8
Over 7.0 cents per k.w.-hr.	.2
Commercial Light Service	
Less than 3 cents per k.w.-hr.	86.0%
3.0 to 4.9 cents per k.w.-hr.	12.4
5.0 to 7.9 cents per k.w.-hr.	1.3
Over 8.0 cents per k.w.-hr.	.3
Power Service—Proportion of aggregate horsepower sold in municipalities where average inclusive charge to consumers is:	
$25 or less per h.p. per year	76.0%
$25-$30 per h.p. per year	8.6
$30-$40 per h.p. per year	15.0
$40 or more per h.p. per year	.4

* *19th Annual Report*, Ontario Hydro-Electric Power Commission, pp. 338-339.

† *The Electrical World* (Jan. 1, 1927) estimated that the average cost of electricity to the domestic consumer in the United States in 1926 was 7.4 cents per kilowatt-hour.

The extent to which the Ontario policies of unified, cooperative operation, and of prorating the costs of central power supply, have served both to reduce rates in general and to lessen the disparity in rates between different associated communities, is strikingly indicated in Table III, showing cost of electrical service to "hydro" municipalities.) It should also be remembered that the rates given in Table III include items applicable to the retirement of capital. For the year ended October 31, 1926, the annual contributions to sinking fund and principal payments on debentures, in respect to the capital investments of the commission and of the municipalities, together with surplus, amount to approximately 20% of the total revenue contributed by consumers to the municipalities which collectively own the undertaking.

Relation to Public Finance

From the standpoint of public finance, the Quebec System presents the twofold advantage of not imposing direct or indirect liabilities upon the provincial treasury (except in relation to the undertakings of the Quebec Streams Commission), and of affording an important source both of municipal and provincial tax revenue.[24] In Ontario the extent to which "hydro" properties and earnings are tax exempt represents a bonus to electric consumers at the expense of general taxpayers.[25] Inasmuch, however, as municipal consumers and municipal taxpayers are largely identical, the shifting of the burden is much more nominal than real. Taxes on account of street lighting, moreover, are lowered in "hydro" municipalities because of such exemption. Furthermore, industries attracted by cheap power afford an additional basis for taxation.

The policy embodied in the Rural Power Distribution Act, it has been shown, does involve a direct treasury construction subsidy for the benefit of rural consumers. The arguments for making power available to agriculture at rates which do not cover all the indirect as well as the direct costs are

[24] Municipal, provincial, and federal taxes paid by the Shawinigan Company have recently averaged $250,000 annually, in addition to $150,000 paid for water storage on the St. Maurice River.

[25] While municipal "hydro" properties are tax exempt, those of the commission itself are only partially so. In replying to the Wyer *Report* to the Smithsonian Institution, Sir Adam Beck stated (p. 7), "The Hydro-Electric Power Commission pays taxes both to municipalities and to the provincial government, to the extent of hundreds of thousands of dollars annually, not only on land which it occupies, but in connection with other properties which it operates. In addition, the commission has paid millions of dollars in customs duties to the government of Canada on materials and equipment which must be imported."

much the same as those which have determined rates on agricultural products in freight classifications. Upon the same analogy, the application of the principle of charging "what the traffic will bear" would shift the cost of such agricultural preferences to urban consumers rather than to general taxpayers. Provincial taxation of "hydro" property to this extent would appear, from the standpoint of public finance, to be preferable to direct subsidy from general revenue. The policy pursued, however, is that approved by the Ontario legislature in the interests of agriculture, and there appears to be little disposition to reverse it.

The Wyer *Report* strongly criticises the Ontario Hydro Commission for its failure to make sinking fund payments to provide for the extinction of its indebtedness to the provincial treasury within 30 years.[26] In Mr. Wyer's own definition of the items entering into the "cost of power," sinking fund payments are not included and he states that "under the scheme of governmental regulation in the United States, the capital invested is not retired, and frequently bonds are refunded." Yet he declares that Ontario "hydro" consumers "have failed to pay the actual cost of the services they received" to the extent of the sinking fund shortages which he estimates. It is true that the sinking fund period in connection with the Queenston-Chippawa development has been extended from the statutory 30 years to 45 years, and that there has been a general tendency to defer the commencement of sinking fund payments for a 5-year period. This, however, is simply a recognition of the well-known principle that until a plant is completed and earning a revenue, it is not expected to commence repayment of its initial capital cost out of current revenue. Under the Ontario System the accrual of sinking fund reserves against the commission's capital debt measures the equity of the "hydro" municipalities in the commission's properties. The charging of large annual payments on this account to permit early debt extinction means imposing an undue burden upon present consumers for the benefit of future consumers. While some of the early expectations held out as to the date when the ownership of the commission properties would pass into the hands of the municipalities have been falsified, the actual practice followed in respect to sinking fund payments has, on the whole, been economically justified. As noted in the previous article, a large number of municipalities have passed out of debt in respect to their local distributing systems.[27]

It cannot be maintained that Ontario's experience in hydro-electric public ownership has been marked by political interference with the system. On the other hand, the late chairman of the commission,[28] by virtue of his masterful personality, his status as a Cabinet member, and the support of the Western Ontario Municipal Niagara Power Union, succeeded not only in having the original powers and financial freedom of the commission widely extended, but also in obtaining retroactive validation for certain un-

[26] The propriety of including a hostile criticism of the finances of Ontario's public ownership system in a conservation report on *Niagara Falls: Its Power Possibilities and Preservation*, made for a national scientific association, is decidedly questionable.

[27] *Journal of Land and Public Utility Economics*, May, 1927, p. 142.

[28] Sir Adam Beck died in office in August, 1925.

authorized acts and commitments.[29] Cost estimates by the commission's engineers of undertakings financed by the treasury were accepted without reference to the government's own engineers, and were generally exceeded. Temporary diversions of funds were frequently made without authorization.[30] Under the leadership of Sir Adam Beck, whose bold vision and aggressive personality disposed him to override legal technicalities and official checks in the furtherance of his public power policy,[31] it was a case of "hydro" in politics rather than of politics in "hydro." It was, however, a domination exercised for public, not personal, ends.

With the rejection of the hydro-radial scheme, largely as the outcome of the report of the Sutherland Commission, and with the exhaustive investigation by the Gregory Commission of the financial relations of the commission and the government, the latter has largely regained control of the situation. Under the chairmanship of C. A. Magrath (formerly Canadian member of the International Joint Boundary Waters Commission), a more deliberate policy is being pursued, of developing and consolidating the system created by Ontario's "Apostle of Power." In the meantime, while the contingent liabilities of the province on account of "hydro" undertakings assume very large proportions, the system has demonstrated its capacity to meet its legitimate capital charges while still keeping its rates low.[32]

Rate Determination

Probably the most significant feature of Ontario's Hydro-Electric System is the application of the principle of "power at cost" in rate fixing. At the end of the year each municipality receives from the commission a statement crediting or debiting it with the difference between the interim rate charged for the year and the "cost" as actually established. Changes in municipal rates to consumers based on changes in cost are subject to the approval of the commission. Most of the municipalities entering the system in its early years enjoyed successive reductions up to 1921, when the greatly increased capital charges arising out of the Queenston-Chippawa undertaking, in addition to higher operating costs, necessitated a considerable upward adjustment within the Niagara Power district.[33] Since then certain reductions have again been made.

In Quebec, rates for light and power are generally established by direct

[29] "While the legislature has widened the powers and increased the authority of the commission, the latter has frequently gone beyond even the wide powers given to it. On many occasions when it has exceeded its legal powers, it has gone to the government or legislature for authority afterwards." Gregory *Report,* cited by James Mavor, *op. cit.,* p. 206.

[30] "Time and time again the commission has used trust funds in its hands for wholly unauthorized purposes." Gregory *Report,* cited by Wyer, *op. cit.,* p. 9.

[31] "The commission throughout has shown an impatience of statutory restraints, and a disregard of statutory obligations," *ibid,* p. 8.

[32] "That the organization administered by the commission is financially sound, there is not the slightest doubt. Any organization that has such a monopoly should have no difficulty in paying its way, provided its method of administration is sound." Gregory *Report,* cited by Mavor, p. 230.

[33] In the case of a number of municipalities which had accumulated considerable surpluses the rates to consumers were not increased to the full extent of the higher cost of power delivered by the commission.

negotiations between private companies and the municipalities or industrial consumers concerned.[34] It is open, however, to any municipality or customer to bring a case for adjustment of rates or conditions before the Quebec Public Utilities Commission, which has authority to render decisions.

The Ontario plan possesses the great merit of making rate adjustments automatic, without involving either bargaining or prolonged and contentious public hearings. The vexing problem of public utility valuation for rate making purposes does not arise, since the actual capital investment on which interest, sinking fund, and renewal charges are calculated as cost items is definitely ascertainable through provincial audit. There is no common stock to be valued, no complication of stock watering, or "prudential" investment. Bondholders are fully protected, while consumers are assured of sharing automatically in the advantages of any reductions in operating or capital costs.

An objection to the Ontario System is to be found in the dual character of the commission as a power supplying organization and as a rate regulating body. Not only does it fix, in accordance with the Hydro Act, the cost of power to the municipalities and companies which it serves, and the rates charged to consumers by "hydro" municipalities, but its commissioners also render decisions in case of disputes on all such rates, whether between municipalities and itself, or between individual customers and municipalities. On administrative as well as logical grounds, it would seem desirable that the functions of rate regulation and electrical inspection now exercised by the commission should be intrusted to a separate provincial body, which should have jurisdiction over both the public "hydro" system and private power companies. This would appear to be all the more advisable when the commission's assets pass into the joint hands of the "hydro" municipalities.

Conclusion

The neighboring provinces of Ontario and Quebec have each evolved hydro-electric policies marked by far-sighted and far-reaching development of their natural hydraulic resources in a manner that has perhaps more than compensated for their lack of mineral fuels. Through provincial and municipal cooperation in Ontario, and through private consolidation and holding company organization in Quebec, the generation, transmission, and distribution of hydro-electric energy in both provinces has been technically, financially, and administratively integrated and concentrated in the interests of maximum utilization and operating efficiency. Quebec's commercial system, with the cooperation of the Quebec Streams Commission, has been able to produce power somewhat more economically than Ontario's public system, and has contributed to, instead of being financed by, the provincial treasury. In Ontario, the Hydro-Electric Commission and municipalities have at times exercised undue influence over the provincial government, and have committed public credit to certain undertakings without adequate consideration of cost. The Quebec government, on the other hand, has been subjected to pressure from private corporations seeking water power concessions on

[34] "We try to keep the rates uniform in the different municipalities for like service and like conditions"—Statement of Shawinigan Water and Power Company to writer.

advantageous terms. In Quebec, hydro-electric operations have been more directly associated with large-scale industrial development, while in the area served by the Ontario Hydro System, greater attention has been given to the interests of municipal and rural consumers, who enjoy considerably lower rates than those prevailing in Quebec under similar conditions. The Ontario Hydro System has made electricity available to all its communities upon the same economic basis. Rates under the Ontario System are automatically adjusted to actual cost of power instead of being fixed by franchise bargaining or valuation by public utility commission. Although consumer stock ownership campaigns have made great headway in Quebec (the Shawinigan Company has nearly 8,000 stockholders), the effective control of its major utilities is concentrated in the hands of a small group of capitalists, whereas the equity in Ontario's provincial system is vested in over 400 cooperating municipalities and townships. While private ownership has conspicuously justified itself in Quebec, there is little doubt that a salutary, if indirect, influence upon the public relations policy of its power corporations has been exercised by the example of Ontario's cooperative hydro-electric enterprise.

THE VALUATION DOCTRINE AT THE CROSSROADS

By MARTIN G. GLAESER

THE policy of valuing public utility property for rate making purposes has come to a fork in the road. A critical choice must be made between the two major theories that have been used in applying this policy. The policy has often been stated, and is easily stated, in general terms—that the legislative fixing of rates for public service corporations should, under normal conditions, yield an earning power sufficient to meet operating expenses under reasonably efficient management and afford the company a "fair return" upon the "fair value" of property "devoted to the public service." Since the United States Supreme Court in 1898, in the momentous decision of *Smyth* v. *Ames,* started the vehicle of public utility regulation down the road marked by the valuation doctrine, giving it certain well-known traveling directions, there seemed to be two paths leading in substantially the same direction.[1] One of these was the investment standard of ascertaining the "fair value," the other was the cost-of-reproduction standard. No one seemed to know, or at least no one fully appreciated, that these two paths might at some points radically diverge. Occasionally, as the vehicle proceeded in the direction indicated by the Court, there were warning voices; but on the whole the divergence between the paths was not great enough to affect the sense of direction. With the price revolution which accompanied the World War, the divergence became so great, however, that it is now proper to speak of the valuation doctrine being at the crossroads.

The Issue Presented

In a review[2] of the two judicial opinions which seemed to recognize the inconsistency in the traveling directions of *Smyth* v. *Ames,* the present writer attempted to trace the error to its source. It seemed to reside in the failure of Justice Harlan to distinguish between private property in public utilities and private property in ordinary commercial pursuits. The distinction is one which is based upon the fact that different institutional developments in the law require differing economic treatment.

Recently the United States Supreme Court has again affirmed its previous position regarding the rate-making rule of *Smyth* v. *Ames.*[3] In obedience to this decision, the cost-of-reproduction standard is receiving greater emphasis in the decisions of courts and commissions.

In this latest discussion of the valuation or, better, rate base problem in the Indianapolis Water Company case, the Court, speaking through Justice Butler,

[1] For a detailed discussion of this subject, see M. G. Glaeser, *Outlines of Public Utility Economics,* The Macmillan Company, New York, 1927, especially chapters 14, 21, and 22.

[2] M. G. Glaeser, "A Focal Point of Conflict in Judicial Opinion on the Valuation of Public Utilities," *Journal of Land and Public Utility Economics,* Vol. 1, p. 250, April, 1925.

[3] *John W. McCardle et al* v. *Indianapolis Water Co.* 47 Sup. Ct. 144 (1926).

criticizes a valuation finding for this outstanding private water utility by the Indiana Commission. The appraisal in this instance was based upon the following interpretation of unit prices by the commission: "Considering all the facts, including all the appraisals and the other evidence concerning the trend of prices, the commission is of the opinion that in this case the average of prices for the 10-year period ending with 1921, the last full 10 years available, most nearly represents the fair value of petitioners' physical property."[4]

Commenting upon this conclusion Justice Butler says: "But in determining present value, consideration must be given to prices and wages prevailing at the time of the investigation; and, in the light of all the circumstances, there must be an honest and intelligent forecast as to probable price and wage levels during a reasonable period in the immediate future. In every confiscation case, the future as well as the present must be regarded." This language is strongly reminiscent of the majority opinion in the Southwestern Bell Telephone Company case.[5]

The dissenters from the doctrine of *Smyth* v. *Ames,* at least as that doctrine has been interpreted since the beginning of the recent price upheaval, are accepting the leadership of Justice Brandeis. In most respects the best criticism of this rule, particularly of the cost-of-reproduction standard, can be found in his minority opinion in the Southwestern Bell Telephone Company case, in which Justice Holmes concurred. Justice Brandeis has consistently maintained this position in several opinions since then, advocating, instead, the adoption of a standard of reasonably prudent investment. Substantially the same standard has been suggested by John Bauer in a controversy with Judge Ransom in the pages of the *Journal,*[6] the latter advocating the use of the cost-of-reproduction standard. It has even been suggested that the attempt to regulate rates upon the basis of the "fair value" concept or any other judicial measure of confiscation be given over in favor of an arrangement which is contractual in character, akin to service-at-cost contracts.[7]

Anyone who will take the trouble to examine the dates of the various court decisions and the findings of fact by commissions which have been the basis of this controversy, will be surprised to learn how slowly this subject is evolving. One circumstance, however, is likely to quicken the pace, and that is the impending final evaluation of the railroads of the country by the Interstate Commerce Commission. The last decision of the United States Supreme Court has, at length, squarely joined the issue between the investment and cost-of-reproduction standards. Up to this time, the majority of the Court has been taking refuge behind the inchoate rule of *Smyth* v. *Ames*, which required a weighting of the several evidentiary facts in the light of the special circumstances of each proceeding. The Indianapolis Water Company case, however, makes it clear that the controlling emphasis is to be accorded the cost-of-

[4] P.U.R. 1923D, p. 514.

[5] *State of Missouri ex. rel. Southwestern Bell Telephone Company* v. *Public Service Commission of Missouri et al.,* 43 Sup. Ct. 544 (1923).

[6] W. L. Ransom, "Some Aspects of the Valuation of Private Property for Public Uses," *Journal of Land and Public Utility Economics,* Vol. 2, p. 1, January, 1926, and by the same author, "Improvements in the Mechanism of Public Utility Valuation," Vol. 2, p. 186, April, 1926; John Bauer, "Reproduction Cost and Desirable Public Utility Regulation," Vol. 2, p. 408, October, 1926.

[7] Gerard Henderson, "Railway Valuation and the Courts," 33 *Harvard Law Review* 902 (1920).

reproduction standard. The decision has already been hailed by the press of the country as a decision establishing the "spot cost of reproduction" as the measure of "fair value."

Shortly after the decision in the Indianapolis Water Company case was announced, the Interstate Commerce Commission gave its own interpretation of the "law of the land" regarding the valuation of public utilities in a proceeding in which it was required to determine the excess income, if any, of the St. Louis and O'Fallon Railway Company and of the Manufacturers' Railway Company,[8] under the recapture clause of the Transportation Act of 1920. The majority and minority opinions in this case show the cleavage of opinion which exists in that administrative tribunal with its present membership. On the other hand, a recent opinion by the Supreme Court of Wisconsin recedes from the former position in *Waukesha Gas and Electric Company* v. *Railroad Commission*[9] and conforms to the ruling of the United States Supreme Court in the Indianapolis case.[10]

The doctrine of the Indianapolis case will, therefore, surpass in importance the opinion in the Southwestern Bell Telephone Company case in its effect upon the development of the valuation problem. This is recognized by two reviews of the Indianapolis case, one commending and the other condemning this decision. The first review is by Halford Erickson, vice-president of H. M. Byllesby and Company, formerly chairman of the Railroad Commission of Wisconsin; the other review is by Donald R. Richberg, general counsel for the National Conference on Valuation of American Railroads.[11] The purpose of this article is to discuss the valuation problem in the light of these recent decisions and the various comments to which reference has been made.

The Indianapolis Water Company Case

The crux of the conflict in this case was the price basis which should be recognized in the finding of fair value. Several appraisals were submitted in evidence, one by the Indiana Commission, two by consulting engineers representing the company, and one by consulting engineers representing the city. Various price bases were used in these appraisals, varying from a 10-year average to current prices as of the date of the investigation. A 10-year average of prices ending in 1921 was adopted by the commission, as already stated. The Court disapproved this basis, holding that "fair value" means "present value," and that, therefore, consideration must be given to prices and wages prevailing at the time of the investigation. More than this, the Court said that there must be "an honest and intelligent forecast as to probable price and wage levels during a reasonable period in the immediate future."

The following is the Court's interpretation of the "fair value" rule:

> It is well established that values of utility properties fluctuate, and that owners must bear the decline and are entitled to the increase. The decision of this Court in *Smyth*

[8] *Excess Income of St. Louis and O'Fallon Railway Company*, Finance Docket No. 3908, and *Excess Income of Manufacturers' Railway Company*, Finance Docket No. 4026; decided February 15, 1927.

[9] 181 Wis. 281 (1923).

[10] *Waukesha Gas and Electric Company* v. *Railroad Commission of Wisconsin*, 211 N. W. 760 (1927).

[11] Halford Erickson, "The Indianapolis Water Company Case," privately printed by H. M. Byllesby and Company, Chicago; and Donald R. Richberg, "Value—by Judicial Fiat," 40 *Harvard Law Review* 567 (1927).

v. *Ames,* 169 U. S. 466, 547, declares that to ascertain value "the present as compared with the original cost of construction" are, among other things, matters for consideration, but this does not mean that the original cost or the present cost or some figure arbitrarily chosen between these two is to be taken as the measure. The weight to be given to such cost figures and other items or classes of evidence is to be determined in the light of facts of the case in hand. By far the greater part of the company's land and plant was acquired and constructed long before the war. The present value of the land is much greater than its cost; and the present cost of construction of those parts of the plant is much more than their reasonable original cost. In fact, prices and values have so changed that the amount paid for land in the early years of the enterprise and the cost of plant elements constructed prior to the great rise of prices due to the war, do not constitute any real indication of their value at the present time. Undoubtedly, the reasonable cost of a system of waterworks, well planned and efficient for the public service, is good evidence of its value at the time of construction, and such actual cost will continue fairly well to measure the amount to be attributed to the physical elements of the property so long as there is no change in the level of applicable prices, and, as indicated by the report of the commission, it is true that if the tendency or trend of prices is not definitely upward or downward and it does not appear probable that there will be a substantial change of prices, then the present value of lands plus the present cost of constructing the plant, less depreciation, if any, is a fair measure of the value of the physical elements of the property. The validity of the rates in question depends on property value January 1, 1924, and for a reasonable time following. While the values of such properties do not vary with frequent minor fluctuations in the prices of material and labor required to produce them, they are affected by and generally follow the relatively permanent levels and trends of such prices. The fact that original cost was probably 12% to 20% less than the estimate of the commission's engineer based on the average of prices for the 10 years ending with 1921—2 years before the rate order became effective—does not tend to support the commission's adoption of that estimate. The cost of reproduction on price levels prevailing January 2, 1923, was found to be 30% to 35%, or from $4,500,000 to $5,000,000 more. The average of prices in the 10 years ending with 1923—the effective date of the rate order—was shown by the testimony of the commission's chief engineer to produce a result nearly 14% higher than the figure adopted; and, on the basis of prices prevailing on the effective date of the order, cost of reproduction less depreciation would be about 32% higher than that taken by the commission. The high level of prices and wages prevailing in 1922 and 1923 should be taken into account in finding value as of January 1, 1924, and in the years immediately following. Moreover, there is nothing in the record to indicate that the prices prevailing at the effective date of the rate order were likely to decline within a reasonable time—1, 2, or 3 years—to the level of the average in the 10 years ending with 1923, and we may take judicial notice of the fact that there has been no substantial general decline in the prices of labor and materials since that time. The trend has been upward rather than downward. The price level adopted by the commission—the average for 10 years ending with 1921—was too low. And it is clear that a level of prices higher than the average prevailing in the 10 years ending with 1923 should be taken as the measure of value of the structural elements on and following the effective date of the rate order complained of.

This interpretation, according to Mr. Erickson, "can have only one meaning, and that is that during a period of stable prices wherein there is no indication that the immediate future trend will be upward or downward by any considerable margin, the cost of reproduction as of the time of the investigation is not only the controlling factor in fixing the value of the physical property but should be made the sole factor."

We agree that this is a correct interpretation of the Court's opinion. From this interpretation Justice Brandeis dissents. Justice Holmes concurs in the result but presumably does not agree with the theory advanced in the majority opinion. In his minority opinion,

Justice Brandeis significantly and pertinently remarks:

Nor do I find in the decisions of this Court any support for the view that a peculiar sanction attaches to "spot" reproduction cost, as distinguished from the amount that it would actually cost to reproduce the plant if that task were undertaken at the date of hearing. "Spot" reproduction would be impossible of accomplishment without the aid of Aladdin's lamp. The actual cost of a plant may conceivably indicate its actual value at the time of completion or at some time thereafter. Estimates of cost may conceivably approximate what the cost of reproduction would be at a given time. But where a plant would require years for completion, the estimate would be necessarily delusive if it were based on "spot" prices of labor, materials, and money. The estimate, to be in any way worthy of trust, must be based on a consideration of the varying costs of labor, materials, and money for a period at least as long as would be required to construct the plant and put it into operation. Moreover, the estimate must be made in the light of a longer experience and with due allowances for the hazards which attend all prophecies in respect to prices. The search for value can hardly be aided by a hypothetical estimate of the cost of replacing the plant at a particular moment, when actual reproduction would require a period that must be measured by years.

The conclusion of the Court that it is confronted with a "relatively permanent price level" is attacked by Mr. Richberg:[12]

If such a price level has finally appeared, it is a new development in our history, and the Supreme Court deserves great credit for up-to-date judicial functioning in its discovery that in the last three years we have reached a condition of price stability heretofore unknown. [Here follows a detailing of the course of the general price level.]

This "relatively permanent price level" of the last three years looks like a storm-tossed sea, on a chart, and can only be called "relatively level" in contrast to the tremendous rise and fall of prices during the World War. There never has been a time when the "experts" estimating the reproduction cost of a public utility property have not differed widely regarding the *past* prices which should be regarded as fairly "applicable." But in making "honest and intelligent forecasts" of *future* prices, these experts will be able to mark up or mark down millions as desired, with scientific precision and assured inaccuracy.

Contrasting with this attack upon the theory of the Court, Mr. Erickson writes:

The basis for determining the value of the physical property thus outlined by the Court agrees, in substance, with the manner in which normal value or price is fixed by competition under our existing industrial system. The way in which such values and prices are fixed under this system is outlined by A. T. Hadley, former president of Yale University, in his book on economics, as follows:

"Under the modern industrial system, there is first a temporary adjustment of the demand and the supply by the commercial competition of merchants, which lowers or (in the converse case) raises the price to make it correspond to the marginal utility. This temporary adjustment results in the market price. Then there is a more permanent though less accurate and universal adjustment of the supply to the demand by the industrial competition of investors, which lowers or (in the converse case) raises the price and the marginal utility until it becomes proportionate to the expense or cost of production. This permanent adjustment, as far as it is carried out, results in an approximation of normal values and prices."[13]

Economists, familiar with this literature and with the point of view of neoclassical analysis of value theory, will at once be able to detect the error

[12] Richberg, *op. cit.*, p. 573.

[13] Other illustrative quotations are from Professor Seligman's *Principles of Economics*, as follows: "When cost of production and cost of reproduction diverge, it is only the latter which affects value"; from Professor Marshall's *Principles of Economics*, as follows: "Normal cost of production and normal cost of reproduction are convertible terms." Roscher and Carey are the other economists cited.

involved in these quotations. The "normal value" concept of these economists, here identified with the cost-of-reproduction standard, has been developed as a statement of the *tendency* of prices under freely competitive conditions. It is an explanation of "exchange value" which might apply were utilities subject to competition with each other. Prices would then, according to these theories, be influenced by the "cost of reproducing the service," which might involve an estimate of the cost of production by means of a modern and efficient "substitute plant," and not the estimate of the cost of reproduction of the "identical plant." The fact is that this analysis is entirely inadmissible where public utilities are monopolies or approach monopolistic conditions. It should be clear, therefore, that a price theory for public utilities must take into account these institutional differences between public utilities and competitive commercial enterprises.

The only judicial opinion which, to our knowledge, takes these institutional differences into account, at least in part, is by Justice Rosenberry in the aforementioned Waukesha case. Unfortunately for the development of the valuation doctrine, this case has been modified. Contrasting strangely with the clear reasoning based upon economic facts in the earlier opinion, the decision in the later case is a legalistic argument from authority:

> In the McCardle case a valuation made substantially like that of the commission in the present case was set aside by the Court, because in view of the great advance in prices during and after the war it did not correctly reflect the actual value of the property as of the time the valuation is made, which is the date of the order fixing the rate, and the probable value for some years to come. A valuation which does not as to the tangible property substantially reflect the then cost of reproduction less depreciation does not meet the requirements. The utility is entitled to the present fair value of its property as a basis for rate making. Hence, where there has been a period of rising prices for many years, original cost plus cost of additions does not correctly measure the present value. Such a method may form the main basis of a valuation during a period of fairly stable prices, but it does not as applied to prices from 1912 and earlier down to 1922. Since the basic result to be reached is the present and near future fair value of the property, any method that will accomplish that result is a proper method. It is doubtful if any method will accomplish such result unless it substantially reflects or agrees with present or recent reproduction cost less depreciation. The method employed by the commission in the instant case does not do so, and under the federal rule referred to must be set aside as confiscatory and unreasonable. Expressions to the contrary in *Waukesha Gas and Electric Company* v. *Railroad Commission,* 181 Wis., 281, are modified to conform to the rule announced in *McCardle* v. *Indianapolis Water Co.,* 47 Sup. Ct. Rep. 144.

The O'Fallon Decision of the Interstate Commerce Commission

The challenge contained in this conflict of opinion was taken up by the Interstate Commerce Commission in its decision in the O'Fallon case. Our comments upon this case are restricted to those portions which relate to the valuation problem as applied to railroad rate-making.

The commission began its pertinent discussion as follows:

> The statute directs that in determining values pursuant to section 15*a* we shall "give due consideration to all the elements of value recognized by the law of the land for rate making purposes." In the methods of valuation which we have followed in this proceeding we have endeavored to give heed to this direction, having in mind not only the conditions existent upon these particular carriers, but also the necessity, in the application of these methods to the carriers generally, of

protecting the private owners of railroad property in their constitutional rights and at the same time of assuring to the public the continued maintenance and operation of a transportation system capable of rendering efficient service at reasonable rates.

The commission's investigation of the facts in this case through the medium of an accounting report disclosed the complete corporate and financial history of the O'Fallon Railway. However, evidence of the original cost to date of the property as a whole could not be obtained, because accounting records from the date of incorporation, June 1, 1896, to June 1, 1908, were missing; but the evidence of the net cost of property additions June 1, 1908, to June 30, 1919, the inventory date, was available, as was also the net cost since that time.

With respect to the appraised cost of reproduction the commission had this to say:

> The underlying engineering report, on which the tentative valuation in the 19*a* proceeding is in part to be based, contains estimates of cost of reproduction new and cost of reproduction less depreciation as of June 30, 1919, based upon 1914 unit prices. These unit prices have been determined, as explained by us in numerous reports in valuation cases, by consideration of the prices for labor and materials and the cost of constructing and equipping railroads, in most instances during a five-year period ended June 30, 1914, but in certain other instances during periods of 10 years or more ended June 30, 1914. *Texas Midland Railroad,* 75 I. C. C. 1.

In determining the value of the property of the O'Fallon Railway, the commission adopted a method which is analogous to the "split inventory method" of fixing the rate base. This method had already been disapproved by the United States Supreme Court in the Southwestern Bell Telephone Company case. Nevertheless, the commission felt that the valuation problem: . . . . is divided into two parts, which can be clearly distinguished, and the date when our valuation work under section 19*a* began marks roughly the division line between these two parts. Since that date we have required the carriers to report in detail all property changes and their costs, and these costs can be verified and checked. In the case of all property which came into existence prior to that date we have an inventory made by our own engineers, but no complete, reliable information as to original costs. The first part of our problem, therefore, is to determine upon a fair single-sum value for this older property. The second part of our problem is to bring this value down to any subsequent date, in the light of the property changes since our valuation work began, of which we have complete reports.

The methods which we have followed in determining the basic values of the older property have been described at length in our valuation reports under section 19*a*. Briefly, we have had before us the cost of reproduction new of the structural portion of this property estimated on the basis of our 1914 unit prices, coupled with the knowledge that costs of reproduction so arrived at were not greatly different from the actual original costs. We have had complete information as to the depreciation of this property—in other words, as to that portion which in reality had ceased to exist because of the consumption of service life. We have had complete information as to the value of the railroad lands, based on the contemporaneous market values of adjoining and adjacent lands. We have had information, as complete as could be secured, relative to the financial and corporate history of the property, including its past earnings. We have further had such information as could be developed with reference to possible appreciation in the value of certain parts of the property because of better adaptability for use, and with reference to such other matters as the carriers desired to bring to our attention.

From this accumulated information we have formed our judgment as to the fair, basic single-sum values, not by the use of any formula but after consideration of all relevant facts. In our opinion, these judgments have been reasonably liberal to the carriers. In all probability they are above rather than below the amounts which would have resulted

if complete records had been available and the investment theory of valuation had been employed. But the public, as represented by the government, must bear some of the responsibility for the absence of records, and it is fair, under all the circumstances, that the basic valuation should be reasonably liberal. . . .

When it comes to bringing these basic valuations so arrived at down to any subsequent date, however, no good reason appears for doing more than making the necessary adjustments to reflect the property changes which have since occurred and which have been fully reported to us, and to reflect any further depreciation of the property. By the adoption of such a method of bringing values down to date we shall achieve the stability of rate base which we have found to be essential to a wise and just plan of public regulation. The method has the further advantages, also, that it is simple and easy of application and involves no great expense or delay and that its results are capable of reasonably accurate forecast. It insures fair treatment to the investor because a fair return will be secured for every dollar that has gone into the project, provided, of course, that traffic is available. Whatever the price level may be, however severe the fluctuations, this method will result in yielding a fair return on every dollar invested and remaining in the property. This is the greatest assurance which can be held out to prospective investors. No greater inducements can be offered in fairness to all the interested parties.

In adopting this method of valuation the commission considered that its problem in the administration of the valuation and recapture provisions was "national in its scope and in its consequences," and that it was "affected by a vast variety of considerations that either do not enter into, or are less easily perceived in problems incident to the regulation of local public utilities." It concluded, therefore, that "limitations of issues, facts, or viewpoints impair many of the precedents which we are asked to follow by routes as divergent as the interests of those who make the requests."

Although the commission was urged to take "cost of reproduction new at prices current on valuation date" as the basic measure of "fair value" to the exclusion of all other factors, it did not see fit to do so. Neither did it augment this figure "by an allowance for something called 'going-value,' which is vaguely defined in many different ways," as it was also urged to do. The commission used, instead, the cost of reproduction new less depreciation of property as inventoried June 30, 1919, based upon its interpretation of 1914 unit prices, plus the *adjusted* net cost from 1914 to date of additions to property, plus the fair average market value of lands at the recapture date, plus an allowance for working capital.

In rejecting the cost of reproduction as the sole standard of public utility valuation, the commission set forth the usual objections with which readers of these pages are sufficiently familiar. Its treatment of the question is marked, however, by concreteness in illustration and by a marshaling of common-sense considerations, which reveal the responsible administrator. The majority of the commission said, for instance:

If it had been applied in 1920, the current reproduction cost doctrine would have required general increases in rates very much higher than those which we authorized. The latter ranged from 25% to 40%. It is quite conceivable that with the then current reproduction cost as the rate base, increases of from 75% to 90% might have been necessary. Neither the country nor the carriers could have endured such a rise in freight charges. Even now, when the general price level is materially lower than it was in 1920, a rate base so determined would in all probability require rates which the carriers would as a matter of self-interest hesitate to charge. The position which the carriers took in *Revenues in Western District, 1925,* 113 I.C.C. 3, is evidence to that effect. *This amounts to saying that under such a doctrine of fair value the carriers would as a matter of self-interest*

choose confiscation. Plainly a doctrine which leads to such a conclusion is irrational.[14]

As if in answer to Justice Butler's statements that values of utility properties fluctuate and "that owners must bear the decline and are entitled to the increase," the commission recounted what this would mean to owners of railroad property, where approximately one-third of the investment is represented by common stock, while the remainder is represented by bonds, notes, or preferred stock, the holders of which are limited to a fixed or maximum return. The benefits of an increased rate base resulting from a rise in the general price level, assuming that traffic could bear an increase in freight rates, "would involve returns to the common stockholders grotesque in their proportions." The commission conceded that "theoretically the holders of common stock would suffer corresponding losses if the general price level should shift downward rather than upward, and this risk of loss is urged as justification for any gains that might accrue." But this theoretical possibility would be without practical consequences because "the country would hardly, for the sake of consistency in theory, permit stockholders to suffer losses which in their effect upon railroad credit would react disastrously upon all industry." The only persons to whom such prospects might appeal would be stock-market speculators. "It would be difficult," said the commission, "to conceive of any plan more conducive to the encouragement of unrestrained speculation in railroad shares than such a method of valuation. In all probability it would provide a feast superior to anything which the bulls and bears have enjoyed since the creation of stock exchanges."

The commission did not blink the problem that changing price levels bring about a change in the purchasing power of money. It was suggested, however, that necessary adjustments be made through the "fair return" so that "investment in railroad facilities will be encouraged and promoted and the companies maintained in good credit."

The minority opinion began, significantly enough, with the reminder "that the function of this commission is not to act as an arbiter in economics, but as an agency of Congress, to apply the law of the land to facts developed of record in matters committed by Congress to our jurisdiction." What the minority believed was the law of the land in relation to the facts in the instant case, appears from the following:

> From first to last, from *Smyth* v. *Ames,* decided in 1898, to *McCardle* v. *Indianapolis Water Company,* decided November 2, 1926, "the present as compared with the original cost of construction" has been named, continuously and consistently, in varying forms of expression, as among the relevant facts to all of which proper consideration must be given and to each of which such weight is to be given as may be just and right in each case.

There is no questioning the fact that the dissenting commissioners followed the law of the land as judicially interpreted, while the majority did not. In fact, Commissioner Aitchison, and to some extent Commissioner Hall, agreed with the majority in the soundness of their economic argument. Only Commissioners Woodlock and Taylor appear to dissent on both legal and economic grounds.

Commissioner Eastman concurred with the disposition of the case by the majority, but filed a supplementary concurring opinion in which Commissioner McManamy joined. In this opinion Commissioner Eastman answered some of the objections raised by the minority, particularly the objection that it is the

[14] Italics ours. M.G.G.

duty of the commission to apply the law of the land as laid down by the Supreme Court. He contended that the Court has wisely avoided a crystallization of the law with respect to public utility valuation and that it is the duty of the commission, where interpretation of the law involves fundamental issues of public policy, to give the Court the benefit of its experience and judgment. For, while the Court is the final authority, "what it decides in one case to be the law may with further light and under certain conditions be superseded in a subsequent case by a modified or different conclusion."

However, he pointed out certain additional aspects of the problem. He called attention, for instance, to the inconsistency in the procedure which adjusts the value of land in the rate base to the market value as of the valuation date. He also mentioned the need of compensating a carrier by means of a larger return in the future for failure to earn a fair return in the past, if such failure has not been due to its own bad management.

Courts and Commissions at Loggerheads—A Way Out

Even if prices become stabilized at about their present level, if the reproduction and investment doctrines are compromised as to the past and the investment standard is sanctioned for the future, the difficulties of rate making will not disappear altogether. At least three important valuation problems will remain: (1) Adjusting the measurement, accountancy, and financing of depreciation; (2) clarifying the confused treatment of "going value"; (3) developing an equitable method of varying the rate of return in accordance with changes in the purchasing power of investors' incomes. Each of these problems deserves detailed consideration in separate articles or monographs.

So far as the present controversy over the rate base is concerned, two points stand out in the writer's mind in view of the varied opinions cited in this article. The first is that the conflict cannot be ended until an agreement is reached, whether it is necessary to distinguish public utility property from other property. If it is necessary to make the distinction, particularly when monopolistic conditions obtain, the way is then cleared for an independent development of the law and economics of public utilities, unhindered by the analogy of competitive undertakings.

The second point is that an agreement must be reached whether, in the development of valuation and regulation doctrines, the going concern idea is necessary in elaborating the scheme of control. If the "going concern" idea is adopted, then most of the difficult technical problems of appraising properties can be eliminated and the process become one of standardized accounting alone. The Waukesha case already referred to makes a beginning in both directions. The decision of the Interstate Commerce Commission in the O'Fallon case also implies that the same choice has been made.[15] Will the

[15] The following description of a railroad system in operation is, in effect, a description of a railroad as a going concern:

"The structures of a railroad system may be compared to a great river like the Mississippi, in which the main stream represents lines of railroad in the system and the branches represent the perpetual flow of new material into it. At New Orleans the Mississippi River is a composite of a vast multitude of waters contributed by a corresponding number of tributaries, big and little. Similarly, at any moment a railroad system is the result of contributions made by many different streams of materials, some wearing out

United States Supreme Court give its assent?

The development of the public utility valuation doctrine for purposes of rate regulation is clearly at the crossroads. In determining which way the development shall proceed, it is at least equally important, in Commissioner Eastman's words, to know the "pertinent facts" and to have had "an experience which makes it possible to visualize the probable results of a particular public policy" as to have the requisite "familiarity with the law books."

Decisions of administrative commissions like that in the O'Fallon case help a great deal to illuminate the problem, which is as much an economic as a legal problem. It will not do to hunt for the materials for solving this problem in the law books alone. As Justice Holmes long ago said with respect to the rational study of legal rules in general, so with the study of the "fair value" doctrine of *Smyth* v. *Ames*, it is necessary "to get the dragon out of his cave on to the plain and in the daylight, (where) you can count his teeth and claws, and see just what is his strength. But to get him out is only the first step. The next is either to kill him (as Henderson suggests), or to tame him and make him a useful animal. For the rational study of the law the black-letter man may be the man of the present, but the man of the future is the man of statistics and the master of economics."[16] As to such studies administrative commissions are in a position to be helpful, for, borrowing again from Commissioner Eastman, they occupy "a daily front seat upon the stage, while the Supreme Court of necessity is only an occasional visitor in the balcony."

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rapidly and others slowly, but all requiring replacements from time to time. All are indispensable to keep the main stream efficient for service. Unless these collateral streams of materials maintain an uninterrupted flow into the railroad structure, the railroad system deteriorates and service to the public suffers. Each kind of material is acquired at prices prevailing when the purchases are made, either at the time of installation or prior thereto, when materials are drawn from accumulated stores, and during periods of time varying by days, months and years. Just as the water of the Mississippi at New Orleans is composed of waters from myriads of different sources, so a railroad system is a composite of materials acquired at myriads of different prices and at infinitely varying periods of time, and put into the plant at many different levels of wages. Neither the highest price nor the lowest, nor the average, nor any price between, represents the outlay made for the system. The only thing that does and can represent what the investor has contributed to the value of the property is the aggregate amount which was paid for the many different items in the perpetual stream of metamorphosing railroad structures."

[16] Oliver Wendell Holmes, "The Path of the Law," in *Collected Legal Papers*, Harcourt, Brace, and Howe, 1920, p. 187.

THE FLORIDA LAND BOOM

By HOMER B. VANDERBLUE

II

THE course of the Florida boom and debacle was clearly traced in the statistics of railroad earnings and current payments (bank debits) discussed in the earlier instalment of this article.[1] Such statistics picture pretty well the course of the real estate and building boom; but it is in the figures for real estate transfers and building permits that the actual speculative transactions which led to the extraordinary expansion in railroad traffic and current payments are recorded. The present instalment takes up the discussion at this critical point.

Published data on the sales in the hundreds of speculative developments (which sprang up all over the state and on the edge of every town in southern Florida) do not exist; nor are there figures upon the sales of "acreage," as the vacant land (some of it pine barren or swamp) came to be called. But for Miami, the center of the wildest speculation, for Orlando, the principal city of central Florida where the speculation was more conservative, and for Jacksonville, which did not feel the stimulus of the boom until very late, figures of real estate transfers are available on a monthly basis for the period since 1916.[2] These data reflect a strong seasonal movement similar to that observed in the series of figures previously presented and discussed; and likewise, after adjustment for seasonal variation, they trace both the steady climb, 1919-1922, and, thereafter, the course of the boom (Charts 11-12 and Tables XIII-XV).

The curves for Jacksonville and Miami started at about the same level, but, with the close of the war, that for Miami began an impressive advance which did not culminate until the fall of 1925. The Jacksonville curve moved much less steadily, and it failed to advance sharply until 1924. Real estate activity in Orlando, like that in Miami, increased steadily after 1918, and by the fall of 1925 actually exceeded that of Jacksonville. Thereafter, a sharp decline of all three adjusted curves set in. During the summer of 1926 this decline was interrupted, however; the curve for Miami remained at about the April level until September, when a further sharp decline resulted from the chaos created by the storm occurring at the middle of that month.

The usual seasonal increase in real estate activity did not materialize in October, 1926, and the adjusted curves have since moved irregularly, as the filing of legal papers essential to the clearing up of titles began to enter into the record. All over the state the real estate market has been "flat" since the early spring of 1926, and, indeed, not only have sales been declining in number, but prices have been upon a distinctly lower level.[3] In many instances

[1] In *The Journal of Land and Public Utility Economics* for May, 1927. Charts and tables appearing in this part of the article are numbered consecutively after those appearing in the preceding issue.

[2] These data are, in fact, for the entire counties in which these cities lie.

[3] No very satisfactory basis for comparing land values exists. When the writer was at Fort Lauderdale in November, 1926, for example, he

a "voluntary moratorium" on land purchased during the boom has been in effect, and cities have come to perceive that they will not realize upon many of the tax bills which have been issued.[4]

In April, 1927, the Coral Gables Corporation announced a policy of filing foreclosure and cancellation actions

was told of a lot in a subdivision which sold for $3,750 cash early in the year, whereas a lot essentially similar to that lot and in the same block had been sold by the same agent during November for $600 cash. This was in a section where "development" work had gone very far and there was much vacant land suitable for building lots. Another case was cited of "acreage" bought in December, 1924, for $5 an acre, sold in early 1925 for $12 an acre (one-third cash), subsequently sold for $17 an acre, resold for $30, and again resold for $60. The gentleman who cited this case was the original purchaser; and the entire series of subsequent purchases were in default. The sales office of one of the larger "developments" was offering "distress lots" at 60% of the original (1925) asked price; but even on this basis a lot 50-150 (facing the golf course!) was being sold for $6,000. A discount of 10% was offered for cash, and an additional 10% discount was offered if 10 lots were bought. Rentals were cut 40-60% for the 1926-1927 season, and vacant apartments in November, 1926, were in such number that attempts to advance rentals "during the season" resulted in emptying many such, the tenants shifting to "distress" apartment houses.

[4] Thus, of a total tax levy of $6,027,000 in the city of Miami, $2,300,000 had been collected up to April 1, with about $200,000 more remaining in the mails, to be credited to taxpayers. Under the law, all taxes became delinquent April 1, but the collecting department gave more leeway to taxpayers because of conditions. The time of payment without interest was extended to May 1. Drastic cuts in city salaries and expenses were made because of the changed condition.

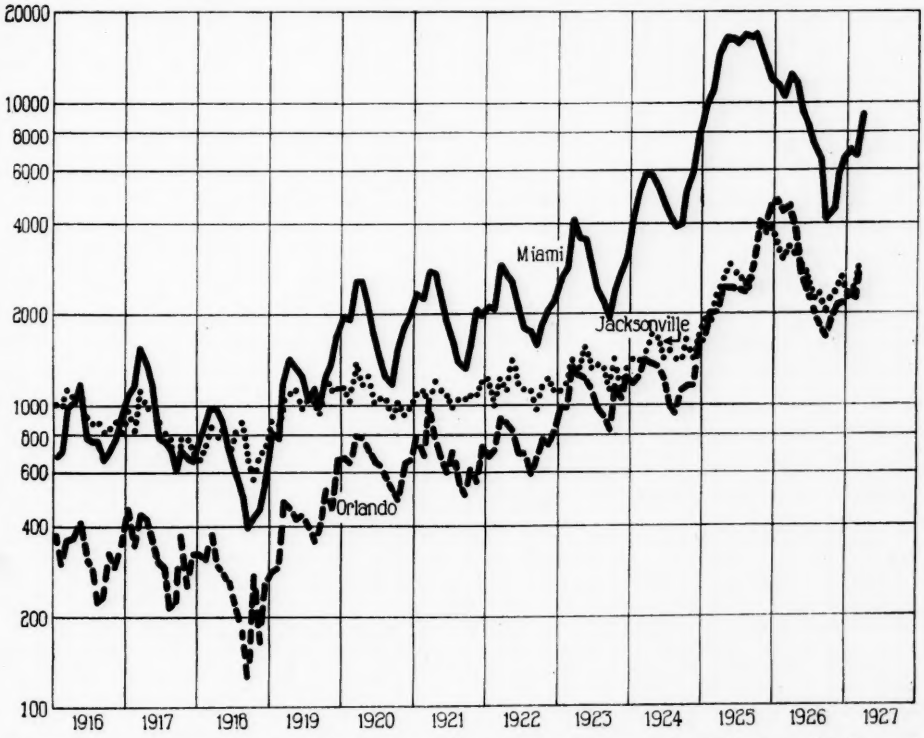


Chart 11. The number of real estate transfers and conveyances in Miami, Orlando, and Jacksonville; reported figures, monthly, 1916-1927. *(Unit: 1 transfer or conveyance.)*

TABLE XIII. NUMBER OF REAL ESTATE TRANSFERS AND CONVEYANCES IN MIAMI, FLORIDA*

(Unit: 1 transfer or conveyance)

A. ACTUAL ITEMS

Month	1919	1920	1921	1922	1923	1924	1925	1926	1927
January	807	1966	2336	2122	2640	4126	9744	11400	6909
February	776	1940	2279	2100	2847	5039	10844	10403	6729
March	1183	2540	2798	2931	4027	5733	14158	12392	9109
April	1420	2555	2775	2738	3594	5727	16409	11749	....
May	1316	2100	2206	2547	3509	5251	16383	9344	....
June	1265	1703	1902	2074	3079	4572	16112	8500	....
July	1062	1407	1609	1798	2420	4166	15825	7275	....
August	1125	1250	1398	1735	2254	3937	16490	6473	....
September	998	1183	1312	1589	1958	3992	16459	4152	....
October	1238	1564	1564	1834	2383	5052	16969	4491	....
November	1373	1795	2067	2042	2751	5992	13288	5824	....
December	1695	1965	1996	2212	3087	7807	11849	6501	....

B. ITEMS ADJUSTED FOR SEASONAL VARIATION

January	747	1820	2161	1964	2444	3820	9020	10550	6397
February	712	1780	2090	1926	2612	4620	9950	9540	6173
March	827	1775	1955	2050	2816	4010	9900	8660	6370
April	1022	1838	1995	1970	2585	4120	11800	8450	....
May	1061	1693	1778	2054	2830	4230	13210	7530	....
June	1265	1703	1902	2074	3079	4572	16112	8500	....
July	1280	1695	1938	2166	2916	5020	19060	8765	....
August	1500	1666	1865	2313	3000	5250	21980	8631	....
September	1511	1791	1988	2408	2966	6050	24940	6201	....
October	1629	2059	2059	2413	3140	6650	22320	5909	....
November	1635	2138	2460	2431	3280	7130	15820	6933	....
December	1841	2135	2169	2404	3360	8490	12880	7066	....

* Actual items were obtained from the Miami Realty Board and National Association of Real Estate Boards. Adjusted items were secured by dividing the actual items by the following seasonal indexes: January, 108; February, 109; March, 143; April, 139; May, 124; June, 100; July, 83; August, 75; September, 66; October, 76; November, 84; December, 92.

in the courts against purchasers of property who were delinquent in payments. For the first time in its history of five years' development, this corporation, feeling that leniency had been exploited, resorted to litigation against its debtors. This was stated to be the beginning of definite action upon a substantial basis aimed at bringing all purchase contracts to a current basis or putting them into litigation. The vice-president of the Coral Gables Corporation said:

> Our corporation has been lenient in every possible way; we have always held that purchasers' obligations to us should be met; but we have been exceedingly indulgent, have adjusted terms, have worked out a generous plan for rewriting contracts, and have met bona fide purchasers freely in the matter of enabling them to carry their purchases without undue strain. There are others who have neglected and failed to pay.
>
> We have now reached the point where all of the undertakings for which we contracted are completed, or are definitely under way. Coral Gables has kept faith in fulfilment of its pledges and in carrying out its development. We therefore feel entitled to take the position that property purchasers who have allowed their payments to lapse shall be expected to keep faith with us and with those purchasers who have regularly and honorably met their payments. Having waited until our own contract obligations are completed or well under way, we feel quite strongly that habitual delinquents must be persuaded to pay, with foreclosure the only alternative, followed by enforcement of such deficiency orders as the courts may award as our due.[5]

The chart based on building statistics (permits) for the three cities, Jacksonville, Miami, and Tampa, does not give a picture very different from those presented in the charts for transfers and conveyances.[6] The tardy response of Jacksonville to the speculative stimulus is again illustrated; and, aside from the frenzied building programs at Tampa in late 1925, this is the outstanding fact shown by the

[5] *Wall Street Journal*, April 22, 1927.

[6] The month-to-month irregularities in the figures are so great that they would render difficult any adjustment to remove the effects of seasonal influences, and on this account only the unadjusted figures are presented. Bimonthly averages have been used rather than monthly figures, in order to eliminate some of the irregularities and so to smooth the curves. While no adjustment for seasonal variation has been made in the permits figures shown on Chart 13, it is noteworthy that, in a general way, a regular seasonal swing can be traced, a swing which is the reverse of that disclosed by the statistical series heretofore presented. Thus it appears that, while purchases of land in Miami have tended to be at their highest in March, the building peak occurs during the summer. The low points for building permits during each year shown on the chart (except 1926) came in January-February and the highest point during the summer. This difference in seasonal variation is, after all, what would be expected in a winter tourist resort.

curves.[7] Chart 13 shows very clearly that while the building boom began to get under way during 1923 in Miami, and during the next year in Tampa, it was not until 1925 that the stimulus was transmitted to Jacksonville.

In 1926, however, when building activity dropped off sharply in Miami and Tampa, it was sustained in Jacksonville. Even in 1925 and 1926, however, the volume of permits in the latter city was very small as compared with the boom figures in the other two cities (Table XVI). And Jacksonville, it should be remembered, is an old city, with an established trade and business position. The development projects were slower to get under way

[7] Walter C. Hill described Miami building conditions in September, 1925, as follows: "The song of the hammer and the saw sounds throughout the land. New building is at every turn. New subdivisions surround the towns and cities, reaching far into the countryside. Most of them have some new residences completed or under way. Many are filling rapidly and present quite a built-up appearance. In the cities, the sharp staccato of the air hammer tells of structures of steel, and they seem to be rising skyward in half the city blocks. Miami has a new sky line of skeleton steel. As seen from across Biscayne Bay, the towering steel frames dominate the sky line. Carpenters and masons are just beginning to fill in with brick and tile. In West Palm Beach a large structure lit by a battery of powerful lights was the busy scene of a night shift. Contractors and builders are said to be booked to capacity for months ahead. On this account and for the added difficulty of getting material shipped in, it is becoming quite a problem to initiate more building of any kind." *(Inspection Report,* Retail Credit Company of Atlanta, Sept., 1925, p. 31.)

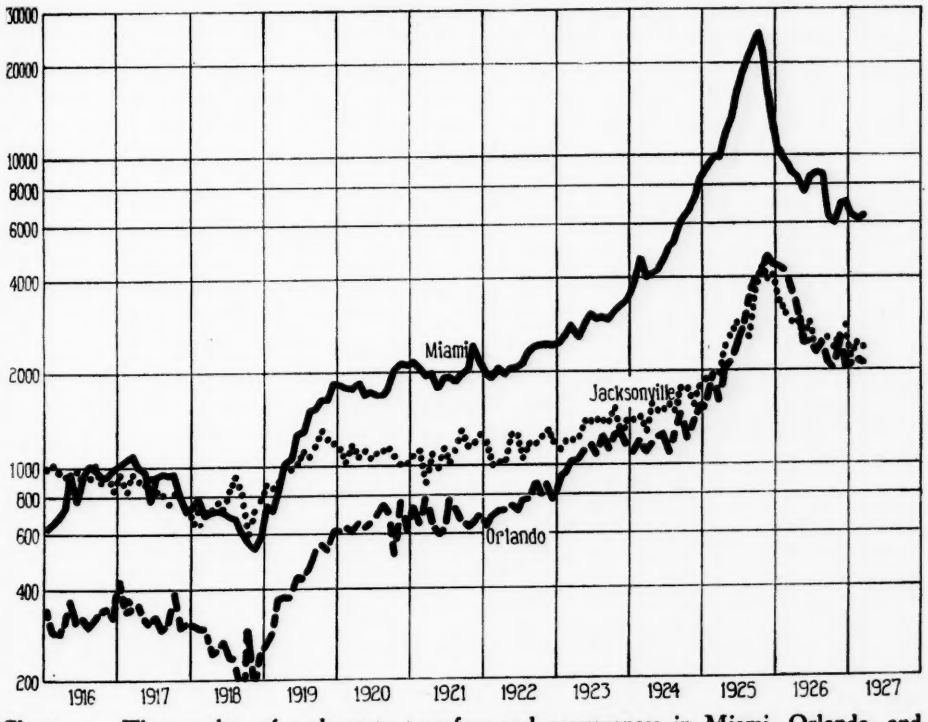


Chart 12. The number of real estate transfers and conveyances in Miami, Orlando, and Jacksonville, Florida; reported figures adjusted for seasonal variation, monthly, 1916-1927. *(Unit: 1 transfer or conveyance.)*

TABLE XIV. NUMBER OF REAL ESTATE TRANSFERS AND CONVEYANCES IN ORLANDO, FLORIDA*

(Unit: 1 transfer or conveyance)

A. ACTUAL ITEMS

Month	1919	1920	1921	1922	1923	1924	1925	1926	1927
January	285	671	787	678	981	1183	1624	4745	2303
February	292	645	675	705	983	1229	2001	4352	2246
March	474	790	1006	906	1329	1404	2003	4507	2735
April	454	782	789	859	1256	1383	2466	3669	....
May	421	704	668	837	1232	1346	2450	2708	....
June	432	649	600	699	1138	1206	2449	2450	....
July	394	630	700	693	978	992	2413	2152	....
August	352	571	547	592	921	940	2635	1849	....
September	404	525	502	657	830	1102	2933	1630	....
October	530	488	613	768	1165	1151	4064	1925	....
November	454	645	554	747	1067	1165	3997	2127	....
December	660	659	734	820	1223	1624	4692	2172	....

B. ITEMS ADJUSTED FOR SEASONAL VARIATION

January	264	622	729	628	908	1095	1504	4390	2132
February	284	626	656	684	954	1193	1943	4220	2181
March	370	617	786	708	1038	1097	1564	3520	2137
April	379	652	658	716	1046	1152	2055	3060	....
May	376	628	596	747	1100	1202	2187	2417	....
June	436	656	606	706	1150	1218	2474	2475	....
July	433	693	770	762	1075	1090	2652	2365	....
August	463	751	720	779	1212	1237	3470	2433	....
September	539	700	669	876	1106	1469	3910	2173	....
October	552	508	638	800	1214	1199	4230	2004	....
November	534	760	652	879	1255	1371	4700	2502	....
December	622	622	692	773	1154	1532	4430	2049	....

* Actual items were obtained from the Orlando Realty Board and National Association of Real Estate Boards. Adjusted items were secured by dividing the actual items by the following seasonal indexes: January, 108; February, 103; March, 128; April, 120; May, 112; June, 99; July, 91; August, 76; September, 75; October, 96; November, 85; December, 106.

there; while several new hotels have been built and office space has been multiplied by new construction, the city is not flagrantly overbuilt as is Tampa and, more obviously, Miami.

The Breakdown of Transportation

The building situation, especially along the line of the Florida East Coast Railway, was complicated during the late summer of 1925 and well into the next year by a series of railroad embargoes. That company had thought to take advantage of the usual summer dullness to complete its double tracking and general improvement program, and the Seaboard Air Line was also busily engaged in building its cross-state branch to West Palm Beach. But the usual summer dullness did not materialize; instead, the volume of railroad traffic held up during the summer. Great confusion followed, partly because of the failure of receivers of freight to unload the cars.

It proved necessary, therefore, to place an embargo against practically all carload freight. Building materials especially were affected; but all classes of traffic suffered from the congestion. A system of permits was adopted; and shippers resorted to shipping in less-than-carload lots — a practice which soon taxed the carriers' ability for handling this class of traffic. Effective October 29, 1925, a so-called state-wide embargo was declared, applying to all carload commodities except foodstuffs; as a result of this embargo, loads destined to points in Florida accumulated at the gateways into the state.[8] Under the operation of the embargo and permit system, this accumulation was cleared up early in January, 1926. By February, the situation generally had become more normal, and on Washington's Birthday the state-wide embargo was modified to apply only to building materials. On April 13 it was further modified so as to include only lumber and cement.[9]

For a time, sailing vessels and steamships helped to move the freight; but, late in December, the harbor of Miami was blocked by the grounding of one vessel and by the overturning of another in the narrow channel. The har-

[8] At one time in the late fall of 1925, this accumulation amounted to approximately 10,000 cars.

[9] For a discussion of the congestion in Florida and the steps taken to meet the emergency, see *Annual Report,* Interstate Commerce Commission, 1925 and 1926, pp. 60 and 81, respectively; also the *Report of the Car Service Division,* American Railway Association, March 19, 1926, at pp. 7-11 and May 19, 1926, at p. 17; also the *Proceedings,* Florida Division, Southeast Advisory Board.

bor congestion at Miami was described in the following language:

Thirty-one vessels carrying foodstuffs and building material, sorely needed in this section of Florida, are anchored off Miami Beach tonight awaiting their turns to enter the port and discharge their cargoes. Because of abnormally congested conditions in the harbor, many of these vessels will be kept waiting from ten days to three weeks before they can enter.

Sixty other ships already are in port, tied up at every available foot of wharfage, and lighters are being sent to sea in tow of tugs so that some of the ships outside can discharge their cargoes there. At the free city piers which the harbor affords, steamers are tied up two and three deep. Along the entire waterfront, schooners of every description are made fast, and there is hardly enough room left unoccupied to dock a rowboat in.

To make matters worse, the tide swept the five-masted schooner "Mary A. Diebold" of Boston across the channel this afternoon, grounding her bow and stern. The Diebold was caught in the mud almost a week ago coming in up the channel, but in such a manner as to permit other vessels to pass. The channel is now effectually blocked, and no

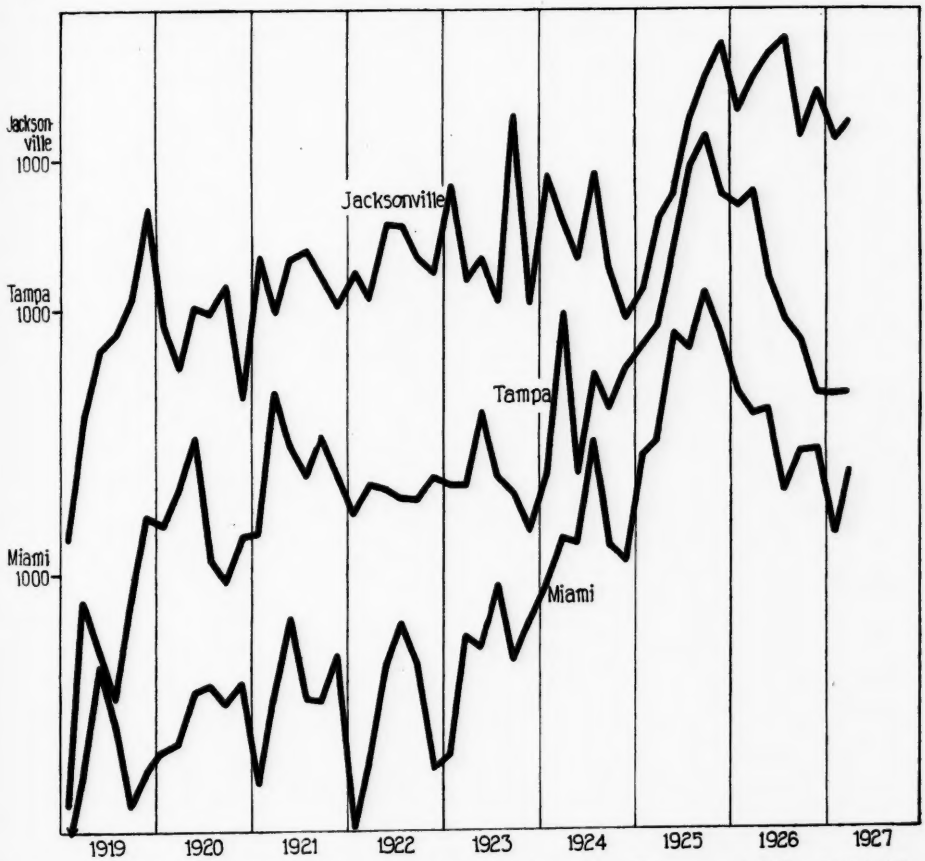


Chart 13. Value of building permits issued in Jacksonville, Tampa, and Miami, Florida; bimonthly averages of actual items, 1919-1927.* *(Unit: $1,000.)*

* Note: These data are plotted on logarithmic vertical scales, so that equal vertical distances measured upward represent the same percentage of increase and equal vertical distances measured downward represent the same percentage of decrease. While the chart records the movements of the three curves, it does not provide a basis for comparing their relative levels.

TABLE XV. NUMBER OF REAL ESTATE TRANSFERS AND CONVEYANCES IN JACKSONVILLE, FLORIDA*

(Unit: 1 transfer or conveyance)

A. ACTUAL ITEMS

Month	1919	1920	1921	1922	1923	1924	1925	1926	1927
January	891	1147	1096	1207	1125	1411	1926	3419	2245
February	855	1036	1103	1000	1184	1405	1909	3028	2429
March	1053	1386	1039	1212	1422	1501	2309	3361	2853
April	1100	1181	1200	1128	1329	1721	2644	2143	....
May	1118	1252	1115	1404	1569	1675	2940	2888	....
June	977	1028	1082	1185	1324	1435	2751	2709	....
July	1083	1069	998	1137	1353	1509	2647	2263	....
August	1035	1060	1057	1126	1321	1420	2457	2371	....
September	945	917	1063	958	1119	1437	2981	2070	....
October	1231	1021	1080	1160	1428	1661	4110	2268	....
November	1122	937	1088	1207	1137	1427	3705	2398	....
December	1143	978	1199	1128	1315	1695	3869	2641	....

B. ITEMS ADJUSTED FOR SEASONAL VARIATION

January	874	1125	1075	1184	1103	1384	1889	3350	2201
February	855	1036	1103	1000	1184	1405	1909	3028	2429
March	885	1165	873	1018	1195	1262	1940	2824	2397
April	1000	1074	1090	1025	1208	1565	2402	2850	....
May	989	1107	986	1241	1387	1482	2600	2555	....
June	1017	1071	1127	1235	1379	1495	2868	2820	....
July	1105	1090	1019	1059	1380	1540	2700	2311	....
August	1078	1104	1101	1173	1376	1479	2559	2470	....
September	1152	1119	1295	1168	1364	1752	3639	2521	....
October	1295	1075	1136	1220	1503	1749	4325	2385	....
November	1205	1007	1170	1297	1223	1534	3981	2577	....
December	1190	1019	1249	1175	1370	1765	4030	2751	....

* Actual items were obtained from the National Association of Real Estate Boards. Adjusted items were secured by dividing the actual items by the following seasonal indexes: January, 102; February, 100; March, 119; April, 110; May, 113; June, 96; July, 98; August, 96; September, 82; October, 95; November, 93; December, 96.

other ship can pass either in or out. The Clyde liner "Seneca" which sailed for Havana at 3 o'clock this afternoon had to turn back to her dock.

Two tugs spent the greater part of the night straining at hawsers in a fruitless effort to free the grounded schooner. It was finally decided to abandon the attempt and wait for high tide tomorrow.

Pilots along the waterfront were unable to give the names of the ships lying outside the harbor tonight, but said there were 10 steamers and 21 schooners. The Nielson liner "Castletoun," with building materials from San Francisco, docked yesterday after waiting outside for a berth for 21 days."[10]

The embargo and the interruption to water service led to a great increase in the costs of building, since the delays in securing materials necessarily handicapped builders; and the completion of certain projects was impossible before the end of the boom was at hand.[11] These conditions were also conducive to much flimsy construction, such as suffered severely in the hurricanes of 1926.

The Collapse of the Boom

The railroad congestion (and the attendant embargo) was but one of the adverse influences which served to slow down the boom during the fall and early winter of 1925-1926. Just when the turning point came it is difficult to say. It appears to have come earlier in the Miami district than on the West Coast. The rush of newcomers who were to buy lots in the newly planned paper cities failed to materialize in November and December;[12] and, before the turn of the year, the trend of bank clearings in Miami was very

[10] *New York Times*, December 29, 1925.

[11] Late in December, 1925, the editor of the *Chicago Journal of Commerce* (Mr. Glenn Griswold) visited Florida, and his paper stated that, as he passed through the heart of the business section in West Palm Beach, he observed an unusually large vacant lot almost completely covered with bathtubs. "I had been accustomed to seeing vacant real estate decorated with used automobiles for sale," said Mr. Griswold, "and so I asked an explanation of the innovation. It was simple: Our guide explained that here was to be erected one of the finest apartment buildings in the south, and went into alluring details as to construction. I have forgotten how many apartments there were to be, but the number of bathtubs on the real estate was equal to the number of apartments.

"The packing crates around these bathtubs were quite weatherbeaten and I suggested to the guide that the work of construction appeared to have been in the bathtub stage for some time.

"'Of course,' he said, as a matter of course, 'that frequently happens. The contractor was able to get through a shipment of bathtubs by boat, but that is the only building material he has been able to obtain.'"

[12] It was alleged by the promoters (and by the Florida press) that the nonappearance of this

definitely downward, even without adjustment for seasonal variation (Chart 14 and Table XVII). By spring, the more sober members of the community were taking out their pencils and calculating that enough acres had been cut up into house lots within 10 miles of Miami to take care of 2,000,000 if all lots were built upon;[13] and, as the dates drew near when additional payments became due on the purchase contracts of the previous season, it became increasingly clear that the speculative enthusiasm was waning.

In many instances, the purchasers—who now found themselves facing the necessity of meeting their contract obligations—had bought "only for a turn," and their cash resources had been exhausted in making the initial payments. In other cases, the purchasers simply refused to send good money after bad; in still other cases, news that suits were being brought against the managements of the "developments" caused a slowing down in the speculative fever;[14] and in a fourth group of cases, evidences of fraud led to the arrest of certain promoters for violating both the state and federal laws.

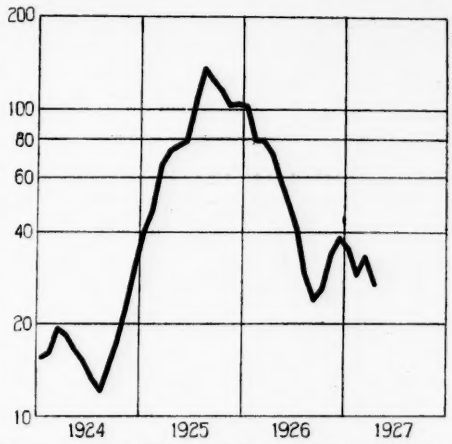


Chart 14. Bank clearings, Miami, Florida; monthly, 1924-1927. *(Unit: $1,000,000.)*

Among those who were attracted by the boom was a former officer of one of the Boston trust companies which was closed in 1921 during the investigations which followed the pricking of the Ponzi bubble. Late in March he

rush was due to "Northern propaganda." It is certainly true that by the later months of 1925, bankers and substantial citizens everywhere were being disturbed by the transfers of funds to Florida. In such cities as Atlanta and Savannah, for example, the labor problem became acute in the stores and offices, since employees left to chase the pot of gold in Florida. And yet, except for the scanty news which leaked out about sanitary conditions, very little really critical comment did reach the northern pubic. As was inevitable in a state where sanitary sewers are almost unknown and where the water supply comes largely from wells, and where hundreds were crowded together in tent cities, barracks, and tourist camps, disease, including smallpox and typhoid fever, appeared. News items concerning this condition appeared only occasionally even in northern papers, however, except when, as in Tampa, in early January, 1926, committees of business men came out in opposition to steps taken by local health authorities. The high cost of living and the difficulty of securing work also received some attention in the northern press.

[13] *Wall Street Journal*, March 24, 1926, special dispatch.

[14] As early as November, 1925, there had been dissatisfaction in the directorate of the Boca Raton Company. At that time General Coleman du Pont had resigned from the board, protesting that the management was in the hands of executives who were not qualified to handle a project of such magnitude and that the wishes of the directors were not complied with. He suggested reorganization and the installation of new management, but he said at the time that he knew he did not have sufficient support as a director to make this possible. Other directors (including Jesse L. Livermore, H. S. Meeds, L. H. Bean, and Matthew C. Brush) signed Mr. du Pont's letter and announced that they concurred in the General's statements. On behalf of the company the retort was then made that General du Pont had sought to "run" the company and that his views did not accord with the policy of the corporation; nor could his desires be carried out without serious interference with the company's construction program.

and his associates purchased a bank and "reorganized it." Earlier in the year (January), word had appeared in the newspapers that Ponzi himself had entered into real estate promotion. Indeed, he apparently solved the problem of embarking on real estate operations without capital. His first step was to issue unit certificates of indebtedness at 310 each, promising a 200% dividend in two months' time. He then acted as trustee for the syndicate thus formed (called the Charpon Land Syndicate) and purchased the best land obtainable for the least amount of money. In a statement to the public he confided that his subdivision, including the cost of the land, subdividing, plotting, staking, advertising, office rental, salaries, and other incidental overhead costs, cost him $40 an acre "as she lays."

The acreage was staked out in lots of 23 to the acre, and these lots were offered to the general public at $10 each, or a total retail price for the acre of $230. If the cash was available (and Ponzi claimed it was when the first dividend was paid), the unit certificate holders were to receive $30 for each $10 certificate. They might, if they wished, accept three $10 lots in lieu of cash. If there was no cash, Ponzi provided that the certificate holders should receive three $10 lots for each $10 certificate, thus disposing of the dividend problem. The land in question, described in Ponzi's advertising as being "near Jacksonville," was, roughly speaking, some 65 miles west of this city, quite a stretch for a Jacksonville subdivision, even as Florida subdivisions went.

The tract was nine miles south of Lake City, in the central north section of the state, and consisted of what is commonly known as "scrub oak and palmetto" land, covered with a thick growth of palmetto and other weeds and nourishing, to some extent, a sparse but hardy scrub oak growth. The subdividing work consisted of making

TABLE XVI. VALUE OF BUILDING PERMITS IN SELECTED CITIES IN FLORIDA; BIMONTHLY AVERAGES OF ACTUAL ITEMS*

(Unit: $1,000)

Month	Jacksonville	Tampa	Miami
1919 January-February	60.5	26.0	89.0
March-April	154.5	114.0	233 5
May-June	241.0	81.0	507.0
July-August	273.5	57.5	330.5
September-October	359.5	119.5	181.5
November-December	695.0	217.0	234.5
1920 January-February	290.5	203.0	271.0
March-April	216.0	270.0	282.0
May-June	332.0	389.0	421.5
July-August	327.0	158.5	435.5
September-October	397.5	134.0	387.0
November-December	171.5	189.0	441.5
1921 January-February	484.5	192.5	215.0
March-April	322.5	542.5	398.5
May-June	476.0	364.0	717.0
July-August	504.0	296.0	398.0
September-October	418.5	390.0	390.0
November-December	338.0	287.0	549.0
1922 January-February	434.5	221.0	154.0
March-April	351.5	273.0	246.5
May-June	616.5	264.5	501.5
July-August	612.5	248.5	683.0
September-October	481.0	247.5	503.5
November-December	436.0	289.0	236.0
1923 January-February	804.0	274.0	262.5
March-April	409.0	272.5	629.5
May-June	485.0	466.5	574.0
July-August	350.0	292.5	907.5
September-October	1375.5	257.5	525.0
November-December	344.5	195.0	699.5
1924 January-February	872.5	297.5	903.5
March-April	640.0	958.5	1279.5
May-June	478.5	297.5	1235.5
July-August	899.0	616.5	2663.5
September-October	446.0	477.5	1218.0
November-December	319.5	641.5	1091.0
1925 January-February	389.5	759.5	2388.0
March-April	648.5	863.5	2664.5
May-June	763.5	1384.0	5887.0
July-August	1341.5	2821.5	5275.0
September-October	1862.5	3567.0	7993.5
November-December	2368.0	2313.5	5835.0
1926 January-February	1410.5	2115.0	3797.5
March-April	1817.0	2374.0	3216.0
May-June	2150.0	1238.0	3362.0
July-August	2487.0	902.5	1804.0
September-October	1180.0	778.5	2429.5
November-December	1653.0	528.5	2474.5
1927 January-February	1161.5	525.0	1307.0
March-April	1342.5	531.5	2155.0

* Sources: National Monthly Building Survey, S. W. Straus Company; Dun's; Bradstreet's.

plans of the property and driving stakes in the ground so that purchasers who might visit the tract might find their lots. Ponzi guaranteed that each lot would face a street 40 feet wide, but he did not guarantee any improvements and frankly stated that there were no improvements on the property.[15] The promoter was subsequently (April 2, 1926) tried for violating the Florida statutes regarding trusts, and found guilty by the jury.

As complaints against fraudulent promotions began to pile up, the National Better Business Bureau, acting in cooperation with certain Florida state and local organizations (the Florida State Chamber of Commerce, the Florida Real Estate Commission, and the Florida Association of Real Estate Boards), made numerous investigations of fraudulent promotions, and their findings were subsequently published in a pamphlet which drew comparisons between the advertising material of certain projects and the facts as found. For example, one such project called "Manhattan Estates"[16] was stated to be "not more than three-fourths of a mile from the prosperous and fast-growing city of Nettie." No such city then existed in Florida, and the turpentine camp, long since abandoned, which once bore that name, had been burned. About 40 acres of the tract was swamp land.

Another project (where plots 25 by 110 feet were sold for $225) went under the name of "La Belle Garden Estates," still another under that of "Brooksville Gardens," while others were variously called Melbourne Heights, Melbourne Manor, Melbourne Gardens, Santa Monica Highlands, Tropical City, and so on. In most cases the land was found to be located

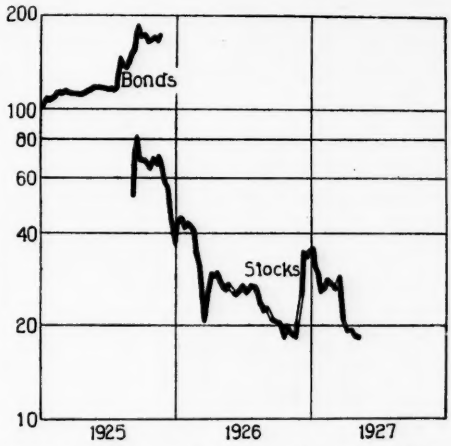


Chart 15. Prices of Series A, 7% Bonds of Florida Western and Northern Railway Company, weekly, January-November, 1925; and prices of common stock of Land Company of Florida, weekly, September, 1925-1927.* *(Unit: $1.)*

* NOTE: Open-track line indicates "no sales reported for the week."

at a considerable distance from existing towns, and in many of them the land was difficult, if not impossible, of access because of intervening swamps. Thus, when an attempt was made to investigate "Melbourne Gardens," an alleged subdivision of Melbourne, it was found that the project was located approximately 15 miles from the city limits. Much of the road was only a trail through prairie muck land, with few trees and small clumps of palmettos; and at a point three miles distant from the property, the automobile became stuck in the mud; since there was no road, it proved impossible to reach the subdivision. Notwithstanding this fact, the advertising alleged that the land was "suitable for home and garden." The

[15] *Boston Transcript,* January 15, 1926.

[16] The promoters usually called their developments estates, gardens, manors, plazas, rivieras or vistas, highlands (even though the land was barely 25 feet above sea level); the highest hills (formerly the "Berkshires of Florida" but the "Alps" during the boom) do not attain 400 feet.

prices asked were $1,000 for ordinary lots to $1,200 for lots fronting the canal, the size being about 150 by 150.

A special bulletin of the National Better Business Bureau, dated May 26, 1926, gave attention to the Fulford-by-the-Sea promotion. The principal promoter of this paper city, with its paper university as a "selling point," had been arrested late in April on a charge of using the mails to defraud. Later (August 3) a fraud order, denying the use of the mails, was issued by the Post Office Department. The Postmaster-General acted on a memorandum prepared by the department's solicitor after an investigation of these companies by postal inspectors sent to Florida. This memorandum showed that the finance company was in the hands of a receiver and that its sales of lots at Fulford-by-the-Sea in the last five years aggregated $10,692,180, of which it had received $2,307,830.95 in cash, and had $4,855,038.55 due on lots, payable in 1926, 1927, and 1928.

According to figures furnished the inspectors by the company, 5,085 lots had been sold to 3,601 individuals up to the middle of February, 1926, the average price per lot being $2,102.69.

TABLE XVII. BANK CLEARINGS, MIAMI, FLORIDA*
(Unit: $1,000,000)

Month	1924	1925	1926	1927
January	15.50	39.94	101.89	35.19
February	16.13	46.10	79.90	29.83
March	19.47	65.83	79.85	33.84
April	18.64	73.82	71.69	27.16
May	16.72	75.64	58.71	24.49
June	15.24	79.31	49.43	.....
July	13.31	106.06	40.50	.....
August	12.26	135.00	28.89	.....
September	14.47	124.46	23.97	.....
October	17.65	115.10	26.05	.....
November	22.70	102.27	33.90	.....
December	30.27	102.99	38.09	.....

* Sources: *Commercial and Financial Chronicle;* correspondence with Miami Clearing House Association.

Solicitor Donnelly informed the Postmaster-General that in advertisements in Miami newspapers in July, 1925, it was represented that the development at Fulford-by-the-Sea was $1,000,000 beyond promises, that during the preceding seven months intensified development work had been under way there, and that more than $1,000,000 had been spent on sidewalks, roads, beautifying homes, and business blocks. The evidence showed that the total expenditures for all improvements on the property had been $582,764.94. In addition, the company built a speedway at a cost of $663,379.35. The solicitor called this speedway an unsightly affair which depreciated the value of the high-priced lots adjacent to it.[17] Sale of the project to a group of "Chicago financiers" was announced by the receiver early in January, 1927.[18]

Uncertainty concerning the rulings by the Bureau of Internal Revenue on the income tax was also assigned, during the early winter, as one reason for the slowing down of the boom. It is highly improbable, however, that this factor became of much importance until March, when the necessity of making payments to the government created a further need for funds by promoters who were already hard pressed. In November and December of 1925 it had been frequently alleged—if one may trust "the experienced New York observer" who had been spending some months on the spot, "for the purpose not of trading in land, but of studying the speculation at close range"[19]—that the marked lull had been due, not to a waning of the boom, but to a desire of the land dealers not to pile up profits which

[17] *New York Times,* August 4, 1926.
[18] *New York Times,* January 3, 1927.
[19] *New York Times,* December 8, 1925.

would be included in the 1925 tax returns. At first, the internal revenue agents had insisted upon considering the notes received as part consideration in land purchases as cash and called for payments of the tax on the full "paper profits" of the land sales. Before March 15, however, the Treasury Department ruled that where paper received in part payment on real estate was not salable at a reasonable discount no tax return need be made.[20]

The Break in Stocks, February-March, 1926

The final blow to the boom seems to have been given by the unsettlement of speculative opinion which accompanied and followed the sharp liquidation of prices on the New York Stock Exchange during February and March, 1926.[21] No Florida stocks are quoted on that exchange, but those of the Seaboard Air Line, which had made extensive commitments in the state during 1924 and 1925, were severely depressed. The common stock, which had sold as high as 54¼ on November 14, 1925, dropped to 27½ on March 31, 1926; and the preferred from 51½ on August 27, 1925, to 31½ on March 31, 1926.

Even more drastic was the decline in the common stock of the Florida Land Company, a Seaboard subsidiary. These shares came into the hands of the public through their inclusion as a bonus with purchases of the bonds issued in December, 1924, to finance the Palm Beach extension of the Seaboard. The course of the price of these bonds (from their issue price of 100 to a higher figure of 197 on September 18, 1925) week by

[20] *New York Times,* March 13, 1926. This article quoted an anonymous certified public accountant as saying that no such thing as a "reasonable discount" existed in Florida and that "gilt-edged" mortgages paying 8% were plentiful at 60 cents on the dollar.

[21] In this connection it is interesting to note that the *Florida News* ceased publication after the middle of April. This journal (which was to be found on Boston and other northern news stands all during the previous winter) had begun publication on September 7, 1925. It regularly contained fulsome accounts of the various promotions and developments and was filled with advertisements descriptive of such projects. The first nine issues of the publication contained 52 pages; 60 pages were published November 9 to January 18, inclusive; 44 pages during most of the weeks thereafter until March 22, when 32 pages were published; and the last three issues were of 28 pages. The *Florida News* was published at Miami. Another boom magazine, a monthly, *Suniland,* a much more elaborate affair, was published at Tampa.

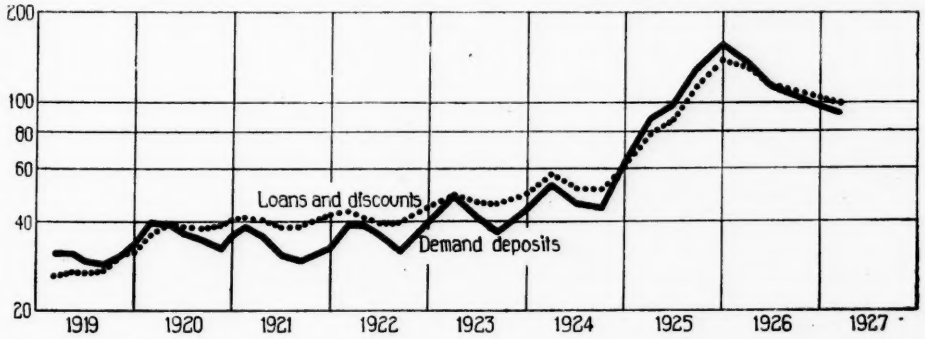


Chart 16. Demand deposits and loans and discounts of national banks in Florida; dates of call, 1919-1927. *(Unit: $1,000,000.)*

week, until they were redeemed in November, 1925, is shown on Chart 15 and Table XVIII. The curves on the chart clearly suggest that the final ecstasy of the boom occurred in August and September, and that thereafter things were drifting downward.[22] This conclusion is supported, furthermore,

[22] During the boom, few Florida visitors ventured to set a date as to the probable end of the mania. It was the present writer's privilege, however, to talk with the late Patrick F. Sullivan of Boston, who had just returned after spending two weeks in Florida during September, 1925. Mr. Sullivan was quite confident that the trend was already downward. Another clear analysis was that of Walter C. Hill, several times cited in this discussion; and there is the anonymous statement which appeared in the *Boston News Bureau* of October 7, 1925, written by a "former western farm mortgage dealer" to a Chicago relative who expressed his guess "we will soon see the end of the Florida boom."

It was Mr. Sullivan who first directed my attention to Mr. Hill's discussion, and the former accepted the conclusion of the latter: "It seems that in years past, the winter visitors have been strong buyers, but they have never bought at present prices. The average man who can spend the winter in Florida may be expected to have some standards of value. Perhaps in the past he has been the one with the true vision and has recognized the actual and potential values better than those who have done the selling. Will he, as a class, be blind now to values and buy property at three, five, ten, and even a hundred times the prices of previous years? 'I hae my doot.' Personally, I do not see the promise in the mid-winter market so confidently predicted in Florida and expect to see a sad day for a large number of the one-payment gentry who will be unable to cash in on their down payments and outstanding notes. A flat winter will slow things perceptibly. On the other hand, suppose I am wrong. Suppose the tourists do take the load up—what a wild spring and summer we will have in 1926! Speculation, promotion, expansion, will know no bounds. There are thousands in Florida who expect this and are planning for it. I am not." With Mr. Hill's discussion should be contrasted that of Roger W. Babson, *Review of Reviews*, November, 1925, p. 477; or reference may be made to "Florida, Land of Promise," by Barron Collier, *ibid.*, November, 1925, p. 485. Other articles by Messrs. Collier and Babson appeared in *Forbes*, September 15, 1925, October 15, 1925, and November 1, 1925. In that magazine (August 15, 1925) there was also an article by G. L. Miller, entitled "How Long Will the Florida Boom Last?" Mr. Miller's company (which later became financially involved) had made its start in Florida and financed a number of building ventures there.

TABLE XVIII. SERIES A, 7% BONDS OF FLORIDA WESTERN AND NORTHERN RAILWAY COMPANY; HIGH AND LOW PRICES FOR WEEKS ENDING FRIDAY, DEC. 1924—NOV. 1925* *(Unit: $1)*

Week Ending	Week's Range or Last Sale	Week Ending	Week's Range or Last Sale	Week Ending	Week's Range or Last Sale
Dec. 12	100⅞—101	April 3	100¾—112⅛	Aug. 7	138 —151
19	101—102½	10	110¾—112	14	136¼—140
26	102—103	17	110¾—111½	21	133⅜—136½
		24	110¾—112	28	134—147½
Jan. 2	102½—103	May 1	112—113½	Sept. 4	145⅞—157
9	103¼—106¼	8	111½—115⅜	11	152—159
16	106½—110⅝	15	114⅜—115	18	151½—197
23	107⅞—109	22	114¾—119¼	25	177—192
30	108¼—109	29	118—119		
Feb. 6	108⅝—110¼	June 5	117¾—119	Oct. 2	164⅛—178⅛
13	112—115⅝	12	117¼—118¼	9	168—178
20	113—114⅞	19	117—117¾	16	167½—170½
27	113⅛—114½	26	116—117	23	164¾—168
				30	165—169¾
Mar. 6	113½—115	July 3	115—116	Nov. 6	165—177½
13	113—115	10	114½—116⅝	13	164—170¼
20	112—113	17	115—115½	20	169—178
27	110⅝—112½	24	115—118	27	178—Nov. 25†
		31	117¼—139		

* Source: *Commercial and Financial Chronicle.*

† Bonds called for redemption November 14, 1925.

by the subsequent course of the price of the common stock of the Florida Land Company (Chart 15 and Table XIX). Before the end of 1925, this had declined to approximately $40 per share, as compared with the high of 94 registered in September when the stock jumped about perpendicularly from 50½ in less than a week. At the time of the March break in the stock market, it fell to 21 and drifted as low as 17 in October; but the subsequent recovery carried the price well above 30 at the end of 1926.

Even the premonitory drop in stock prices at the end of February had led to an exodus of speculators sufficient to excite comment. Thus, a Palm Beach dispatch to the *New York Times*, dated March 10, 1926, stated that the "recent bear market took back to New York hundreds of well-to-do business men who might have been regarded as producers."[23] Scores of small real estate offices were closed "over night," and in its issue of March 12, 1926, the *Wall Street Journal* reported that a canvass of financial men who had recently returned from Florida disclosed a unanimous feeling that the Florida boom was over and that a declining real estate market might be expected to bring "many adjustments" which would affect overpromoted developments.[24]

[23] The liquidation in Wall Street, however, was seized upon by the Miami real estate bond houses as the basis of strengthening their sales appeals. One such, for example, published a 4-page circular, used in its mail sales campaign, headed in large type, "How Wall Street Lost 4 Billions," with the subtitle, "And how you can forever escape such losses and *have a larger income return than you can get in the stock market.*" An 8% return was offered in bonds for which the *offering* company acted as trustee; and the reader of the circular was assured that an investment in such bonds carried with it the deep satisfaction of knowing that the money invested was safe against financial upheavals and the fluctuations of the security markets. Furthermore, the purchaser was assured of "a liberal rate of interest."

[24] On April 16, 1926, the "Florida Takes Inventory Congress" was held at Palm Beach under the auspices of the Florida State Chamber of Commerce. The president of that organization in his address (p. 57 of the *Proceedings*) stated that the congress was "the result of a conviction that so far as Florida was concerned, the gold

TABLE XIX. COMMON STOCK OF LAND COMPANY OF FLORIDA; HIGH AND LOW PRICES FOR WEEKS ENDING FRIDAY*

(Unit: $1)

1925		1926						1927			
Week Ending	Range	Week Ending	Range	Week Ending	Range	Week Ending	Range	Week Ending	Range	Week Ending	Range
Sept. 11	50–54½	Jan. 1	34–41	May 7	25⅞–27¼	Sept. 3	22⅛–23	Jan. 7	35½–36	May 6	No sale
18	50½–94	8	40–47¾	14	25½–27	10	22¾–23½	14	30¾–32½	13	18⅝–18⅝
25	74–89¾	15	41⅝–47	21	27½–27½	17	No sale	21	28½–30	20	19–19
		22	42¾–46¼	28	No sale	24	20¼–22	28	26⅛–26⅛	27	18⅜–19
		29	41–43⅛							June 3	18–19
Oct. 2	60–77	Feb. 5	40¾–45½	June 4	25¾–25¾	Oct. 1	21–21	Feb. 4	26⅞–27	10	19–19⅝
9	62–74	12	40⅛–45	11	25⅛–25½	8	No sale	11	27–29⅝	17	19–19⅝
16	64½–71	19	37–44	18	No sale	15	20–21⅛	18	27½–28	24	19–19
23	63⅛–67	26	29–41	25	25¾–26½	22	17–19⅞	25	No sale		
30	62¾–66					29	20–20				
Nov. 6	62½–75	Mar. 5	27⅛–35¾	July 2	27–27	Nov. 5	18¾–20	Mar. 4	26–27⅞		
13	63–70½	12	27–28⅛	9	25½–26	12	18¾–18¾	11	No sale		
20	66⅛–74¾	19	22–27⅛	16	26–26	19	18½–18½	18	25⅛–32¼		
27	64½–68	26	21–22⅞	23	27–27	26	20–21	25	20–23		
				30	No sale						
Dec. 4	51–65	Apr. 2	22–30	Aug. 6	27–27	Dec. 3	No sale	Apr. 1	No sale		
11	51–62½	9	26⅛–32	13	25–26½	10	22¾–27½	8	18⅝–20⅛		
18	50½–55	16	28–30	20	23–24¾	17	27½–41	15	No sale		
24	38–50	23	29¾–30	27	23½–24	24	31–36	22	19–20½		
		30	26⅞–30			31	32⅛–37	29	18½–19		

* Source: *Commercial and Financial Chronicle* (New York Curb Market).

The Banking Situation

Not until the early summer of 1926 did the inevitable bank failures, such as always follow in the wake of a land boom, begin to appear. At the end of December, 1925, many of the Florida banks had deposits 20 and 30 times their combined capital and surplus; as these abnormally large deposits were drawn down, such banks as had become involved in the real estate speculation through heavy loans to "operators" and "developers" found themselves unable to meet the demands made upon them.

It is noteworthy, however, that the banks which failed were mostly small institutions, some of them recently organized. The table below lists the first 15 banks which closed their doors.[25]

The shock was not felt immediately the seasonal tide turned, but around the middle of 1926 the failures piled up, as runs resulted in the further rapid drawing down of deposits. Also, certain Florida banks, together with a number of Georgia banks, were involved in the failure of the Bankers' Trust Company of Atlanta, which resulted from a misuse of that company's funds. The Florida members of the chain had placed their funds on call with the Atlanta bank, and when the prompt return of the funds could not be had as needed, the series of bank failures followed. These failures naturally unsettled confidence in the soundness of the Florida banking institutions and led to other bank runs.[26]

Considerable withdrawals of deposits

(Footnote 24 continued from page 265)

rush was over and placer mining at an end." The address also contained references to "the return to normalcy," and the like, and one speaker (Roger W. Babson) informed his hearers that the difficulty with Florida at the moment was that some of the large financial interests in the north had become frightened at the tremendous growth the state had taken (p. 61). On the whole, the talks were "inspirational," well saturated with "vision."

[25] *Wall Street Journal*, July 13, 1926.

[26] For the statement of the Jacksonville Clearing House in this situation, together with Atlanta advices on the same subject, see *Commercial and Financial Chronicle*, Vol. 123, pp. 411, 529, 666, 1583.

	Year Organized	Capital	Surplus and Undivided Profits	Deposits
American Bank and Trust Company, Daytona Beach	1924	$100,000	$ 32,720	$1,871,670
East Coast Bank and Trust Company, Daytona Beach	1912	50,000	50,570	2,237,400
Bank of Dania	1912	30,000	29,030	1,942,920
Citizens Bank, Bushnell	1906	15,000	8,800	185,300
Bank of Buena Vista	1920	25,000	66,070	2,479,050
Bank of Cocoanut Grove	1920	15,000	5,920	1,326,260
Delray Bank and Trust Company	1913	50,000	85,000	1,800,000
Citizens Bank, Homestead	1920	50,000	38,310	500,150
Bank of Little River	1922	15,000	15,320	1,643,150
City Bank and Trust Company, Fort Lauderdale	1925	50,000	10,000	353,940
Bank of Okeechobee	1916	25,000	80,000	1,190,000
Palm Beach National Bank, Palm Beach	1925	50,000	21,990	1,062,560
Peoples Bank and Trust Company, St. Petersburg	1925	200,000	42,330	1,337,400
Commercial Bank and Trust Company, West Palm Beach*	1924	100,000	29,970	2,808,150
Palm Beach Bank and Trust Company, West Palm Beach*	1909	75,000	141,040	8,772,090

* The circumstances leading to the failure of the last two institutions (which had loaned funds for land speculation to companies in which officers of the banks were interested) are given in the *Commercial and Financial Chronicle*, Vol. 123, p. 1583.

after the peak of the tourist season had been passed were to have been expected. This is clearly shown on Chart 16, where the two curves trace the changes in demand deposits and in loans and discounts of the national banks of Florida at the dates of call, beginning with March 4, 1919 (Table XX). Deposits always fall off sharply in the summer, and it becomes necessary to curtail loaning operations and to recall funds placed in other money markets.

The rapid uprush of deposits in 1925 was the result of an abnormally heavy transfer of funds from other sections of the country. In 1926, therefore, the drop was certain to be very sharp for both deposits and loans.[27] Indeed, the condition faced by the Florida bankers in 1924 and 1925 was quite unprecedented, and it is the more remarkable, and greatly to their credit, that most of them were prepared for the shrinkage in deposits when it came. The plethora of funds had not been allowed to flow into land speculation but was invested mainly in corporation and government bonds or commercial paper and in loans at call in New York.[28] The bank failures were relatively few in number, therefore, and especially, when the extent of the Florida land speculation is taken into account, the attendant losses quite small.

In January, 1926, the governor of the Federal Reserve Bank of Atlanta had visited every member bank in the state in order to advise with the officers. He then found that, for the most part, the banks were prepared for a with-

[27] This transfer of funds to Florida attracted the attention of bankers throughout the country. In November, 1925, the treasurer of one of Boston's oldest savings banks was quoted as saying: "We send remittances to Florida every day. It is a new development in the last few weeks—I'd say since August.

"The withdrawals for Florida are constant and are steadily increasing. It means that a new class of investors is affected; savings bank depositors are mostly people who cannot afford speculation."

And Dana S. Sylvester, manager of the Massachusetts Savings Bank Association, estimated that perhaps 100,000 of the 3,000,000 savings bank deposits in Massachusetts had been drawn on since June to send to Florida. The total savings drawn out for Florida from June to October from Massachusetts savings banks, Mr. Sylvester believed, might amount to $20,000,000. The larger centers were most affected. Savings banks in the Connecticut Valley, for example, noticed little of the change that was felt in Boston, as personal promotion and publicity for Florida were concentrated in the metropolitan area. (*New York Times*, November 2, 1925.)

[28] In Miami, the deposits of the clearing house banks, which were $56,000,000 on December 31, 1924, rose to the amazing figure of $191,000,000 eight months later, and one year later, December 31, 1925, stood at $173,000,000. Having risen from $56,000,000 on December 31, 1924, to $173,000,000 on December 31, 1925, they dropped back to $98,000,000 on June 30, 1926, and still further decreased to $80,000,000 on December 31, 1926. The deposits of the First National Bank of Miami, which were $35,516,959.72 on April 6, 1925, rose to their highest on September 17, 1925 ($66,798,221.96) and fell under $24,000,000 on April 18, 1927. At the Comptroller's date of call nearest the peak (September 28, 1925), deposits were $63,089,867.82. The complete statement of the bank on that date follows:

Resources	
Loans and Discounts	$ 8,189,366.24
Commercial Paper	5,035,122.65
Stock Exchange Loans	15,000,000.00
Bank Acceptances	1,031,465.82
Overdrafts	18,856.51
Banking House Equipment	182,630.20
Marketable Bonds and Securities	10,021,177.02
United States Bonds and Treasury Certificates	4,712,127.39
Cash Reserve	20,700,211.36
	$64,890,957.19
Liabilities	
Capital Stock	$ 600,000.00
Surplus and Profits	1,105,589.37
United States Bonds Borrowed	95,500.00
Deposits	63,089,867.82
	$64,890,957.19

This statement by itself is striking testimony to banking skill of a high order.

drawal of funds such as would inevitably follow the collapse of the boom. In some cases it was necessary for the banker to put his house in order; but how well this was done is shown by the fact that only one of the banks which closed its doors belonged to the reserve system. This was, in itself, a very remarkable achievement on the part of the bankers in the state and the authorities of the reserve system.

In February and March, 1927, came another series of bank failures. At Daytona Beach, two banks which had closed their doors early in the summer of 1926 and had reopened soon after again suspended; around the middle of March, a number of Palm Beach banks closed after a series of runs. The unsettlement at Palm Beach led to other runs, and banks in several nearby towns were forced to close.[29]

The occurrence of these failures at the height of the season reflected the disappointing character of the 1926-1927 tourist business. Not only was the economic situation bad in Florida, but an unusually severe drop in temperature occurred in January at the beginning of the "season," while the winter was rather mild in the North. Further unseasonable weather occurred in February and the passenger earnings of the Florida East Coast Railway failed to show the usual seasonal expansion.[30] Similarly, the steamship companies found business disappointing, and curtailment of service followed.[31] The cities and towns were overbuilt, so that housing facilities were available at

[29] When the runs were over, only three of eleven banks in Palm Beach and West Palm Beach were open. During the height of the excitement, a run began on the postal savings department (*Boston Herald*, March 3, 1927).

[30] This was undoubtedly due, at least in part, to the completion of the Miami extension of the Seaboard Air Line late in December, 1926. The first passenger train arrived at Miami on Jan. 8, 1927.

[31] *Wall Street Journal*, April 2, 1927.

TABLE XX. SELECTED ITEMS FROM STATEMENTS OF NATIONAL BANKS IN FLORIDA*
(Unit: $1,000,000)

Date of Call	Loans and Discounts	Demand Deposits	Date of Call	Loans and Discounts	Demand Deposits
1919 Mar. 4	26.45	31.15	1923 Apr. 3	49.56	48.34
May 12	27.12	31.60	June 30	46.52	40.81
June 30	27.00	29.14	Sept. 14	45.68	36.92
Sept. 12	27.30	28.39	Dec. 31	49.76	43.93
Nov. 17	30.47	30.47	1924 Mar. 31	57.16	52.34
Dec. 31	31.60	33.59	June 30	51.47	45.80
1920 Feb. 28	36.01	39.99	Oct. 10	51.32	44.26
May 4	39.62	39.32	Dec. 31	61.61	62.49
June 30	38.38	36.52	1925 Apr. 6	78.17	88.99
Sept. 8	37.90	34.81	June 30	87.81	97.42
Nov. 15	38.64	32.56	Sept. 28	111.58	126.78
Dec. 29	40.27	35.66	Dec. 31	137.71	155.13
1921 Feb. 21	41.29	38.11	1926 Apr. 12	128.66	134.78
Apr. 28	40.53	35.58	June 30	114.18	113.82
June 30	32.28	30.86	Dec. 31	103.97	95.66
Sept. 6	38.38	29.52	1927 Mar. 23	99.83	91.59
Dec. 31	42.61	32.74			
1922 Mar. 10	43.05	39.15			
May 5	41.15	38.83			
June 30	39.74	35.41			
Sept. 15	39.80	31.87			
Dec. 29	44.54	38.61			

* Source: *Reports of the Comptroller of the Currency.*

"reasonable" rates, and building operations were practically stopped. The construction programs of the towns and public utilities were nearing completion, and lack of funds slowed down private "development work." Many of the real estate promotions had already been petitioned into bankruptcy, and news of additional suits and bankruptcies appeared in the newspapers during the winter.[32] Very clearly the boom was in process of liquidation.

Conclusion

The most important subject remaining for discussion necessarily has to do with the future of Florida. Is the present depression to persist indefinitely, or is another Florida boom in early prospect? To both questions it appears that an unequivocal negative answer should be given. For most of the present year, necessary readjustments (legal and financial) will be under way; and so great are the complications in many instances that it will probably take even longer before a clear appraisal of prospects can be made. In the interim, many of the paper cities and subdivisions—so alluring to the purchasers in 1925—will have grown up with palmetto, and such as possess actual economic merit and can command financial support will have determined their actual assets and liabilities. Already, steps are being taken to foreclose mortgages on the office buildings, hotels, and apartment houses built during the speculation. For some of these (notably certain of the skyscrapers in Miami) the money spent in their construction has probably been lost exactly as though it had been sunk in drilling dry holes in an oil field. These buildings should stand for a long time as monuments to folly, and by so standing they will warn against a recurrence of a boom psychology.

But while such recurrence is improbable, it is equally clear that the steady growth in Florida,[33] though now interrupted, will presently be resumed. The crash of the boom has not destroyed the natural economic assets of Florida. The climate will continue to attract tourists and winter residents, and discovery of means to extend the state's agricultural and other resources will go on. The improvement will undoubtedly be very gradual at first (as it nearly always is, following a severe crash), and the present overbuilt conditions and the heavy burden of local debt will slow down the rate of recovery. But the two great assets of the state—a mild winter climate and relative proximity to the densely populated sections of the country—promise that, over a period of years, the recovery from the present depression will be both certain and substantial.

[32] One such suit, typical of many, grew out of the Palm Beach Ocean project. The promoter of that project had promised a tunnel under Lake Worth inlet which should connect the property with Palm Beach proper. Later, it was announced that an aerial bridge would take the place of the tunnel. A nine-story steel and concrete hotel, the Blue Heron, also had been advertised, and this was practically completed though never occupied. Palm Beach Ocean is accessible only from the main land, by a bridge across Lake Worth, but requires a long, roundabout trip for persons going there from Palm Beach proper. The development therefore stood in a state of semicompletion—"a monument to hopes blasted by the collapse of the boom" (*New York Times*, April 12, 1927). Other suits which attracted attention concerned the Miami Shores project (*Wall Street Journal*, Dec. 21, 1926; Jan. 7 and 21, 1927) and the Florandada Club (*Boston Herald*, Mar. 20, 1927).

[33] The steady growth illustrated, for example, in the freight and passenger earnings of the Florida East Coast Railway since its completion to Miami in 1896 (see Chart 1, *Journal of Land and Public Utility Economics*, May, 1927, page 115).

COMMON CARRIER MOTOR VEHICLE OPERATIONS IN WESTERN MICHIGAN

By C. C. EDMONDS

THE development of the motor vehicle and the construction of improved highways have resulted in the rapid increase in the use of the motor vehicle as a common carrier. The development of common carrier motor transport has, for the most part, been undertaken by numerous independent operators each seeking to supply an evident need for this type of service.

Many of these services have proved desirable and beneficial to the community at large, but in some instances uneconomical practices have resulted, and duplication of facilities and unsatisfactory service have been common. With the development of the industry the tendency has been for internal readjustment to correct many of these early conditions and to coordinate the activities of the various units within the group.

The motor vehicle is an important transportation factor in the state of Michigan, and a survey of its operations as a common carrier, even in a limited area of the state, should be of value. This study has accordingly been confined to that area in western Michigan adjacent to the city of Grand Rapids, which may be circumscribed roughly by a radius of 70 miles from that city.

The territory adjacent to Grand Rapids presents an attractive field for the operation of the common carrier motor vehicle. Grand Rapids, the second largest city in Michigan, has a population of approximately 172,000 and is located at a considerable distance from both Detroit and Chicago. Because of its strategic location, the city has become a commercial and distributing center for a large area in western Michigan. A number of smaller cities lie within a radius of 60 to 70 miles, and the intervening territory has numerous towns and villages which, for the most part, are located along the principal highways in this area. Table I indicates the population characteristics of this area.

A comprehensive system of highways radiates from Grand Rapids, giving it convenient access to the surrounding territory. A substantial proportion of these highways are improved with a permanent surface or are all-weather gravel roads. In order to accommodate automobile traffic, an extensive program has been carried out covering the re-

TABLE I. POPULATION STATISTICS, GRAND RAPIDS AREA, MICHIGAN
(January 1, 1927)

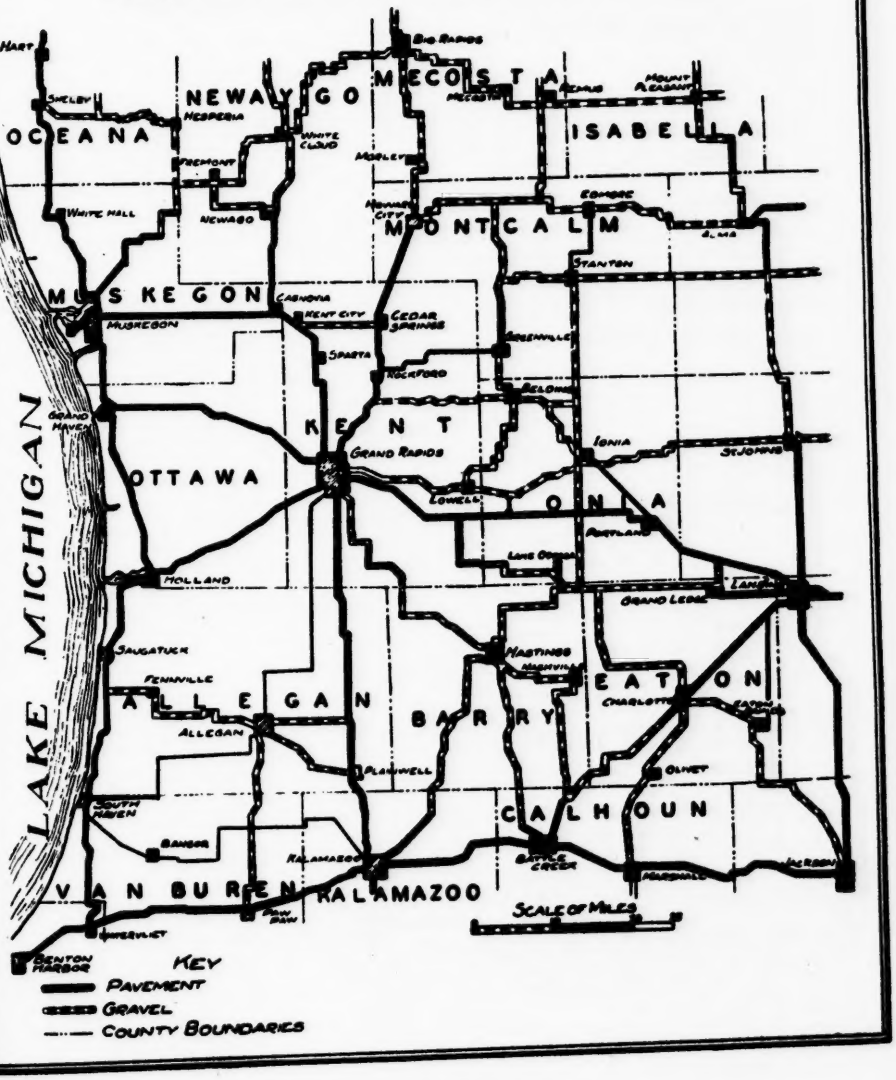
COUNTY	POPULATION			
	Total	Urban	Rural	Per Square Mile
Kent	194,116	148,709	45,407	225.7
Muskegon	72,460	56,182	16,278	143.7
Ottawa	48,754	20,482	28,272	86.2
Newaygo	17,378	12,471	4,907	20.4
Mecosta	17,765	4,558	13,207	31.1
Montcalm	30,441	4,304	26,137	42.0
Ionia	34,087	11,846	22,241	58.8
Eaton	29,377	8,169	21,208	51.4
Barry	21,385	5,134	16,251	38.4
Allegan	37,540	6,805	30,735	45.0
Calhoun	90,463	66,333	24,130	130.5
Kalamazoo	76,230	53,492	22,738	135.6
Van Buren	31,715	4,829	26,886	51.4
Total	701,711	403,314	298,397	82.6

location of the highways, the realignment of curves, and the widening of bridges and approaches. While the requirements of the local communities have been given due consideration, an effort has been made to develop a highway system that will facilitate long-distance motor vehicle operation.

A number of through trunk highways which traverse the entire state converge at or near Grand Rapids; and these highways, supplemented by numerous other roads of more purely local importance, provide the city with ex-

Map A

PRINCIPAL HIGHWAYS IN GRAND RAPIDS AREA



cellent highway facilities. The state trunk highways are of particular significance because of the economic characteristics of the state. Michigan is essentially a manufacturing state, and while the Detroit area is the principal manufacturing region, there are a number of other important manufacturing cities in various parts of the state. The presence of a connecting system of highways between these centers permits the convenient interchange of persons and materials and represents a substantial advantage. The extent of the state trunk highway system in this area is shown by Map A.

Motor Bus Lines

Numerous common carrier motor vehicle lines have been established to provide transportation facilities for this area, and their development has resulted in the present comprehensive system of highway transport. A survey of existing passenger lines indicates that every highway of more than local importance is traversed by a bus line with the exception of the highway between Grand Rapids and Grand Haven. The extent to which these carriers have occupied the principal highways is shown on Map B.

Operating conditions for the bus lines in this area are very favorable, as those routes having the heaviest traffic operate entirely over paved highways. The remaining lines operate over either gravel roads or roads having a combined gravel and concrete surface. The rapidity with which the principal highways in this area have been incorporated into the state trunk system and have been improved, has substantially benefited the bus lines.

All bus lines, with a single exception, operating out of the city of Grand Rapids at the present time, hold certificates of convenience and necessity from the state of Michigan. One company, operating between Grand Rapids, Muskegon, and Chicago solely as an interstate carrier, does not possess a Michigan certificate except for a small portion of its route.

Ten certificates are outstanding and cover the operations of nine companies over eleven distinct routes, two routes being served by duplicate facilities. The total number of miles represented by the companies covering these routes alone is approximately 525, the average length of route being 40½ miles.

Several of the companies also operate other routes which connect with their Grand Rapids line. Moreover, one company, operating between Grand Rapids and Kalamazoo, also has bus lines in the eastern portion of the state, which are connected by rail with their Grand Rapids line.

The total system mileage represented by these companies is approximately 1,140 miles. The distribution of this mileage among the various lines is given in Table II. The relatively small number of certificates outstanding in relation to the number of routes covered indicates the extent to which consolidation has already taken place in this area.

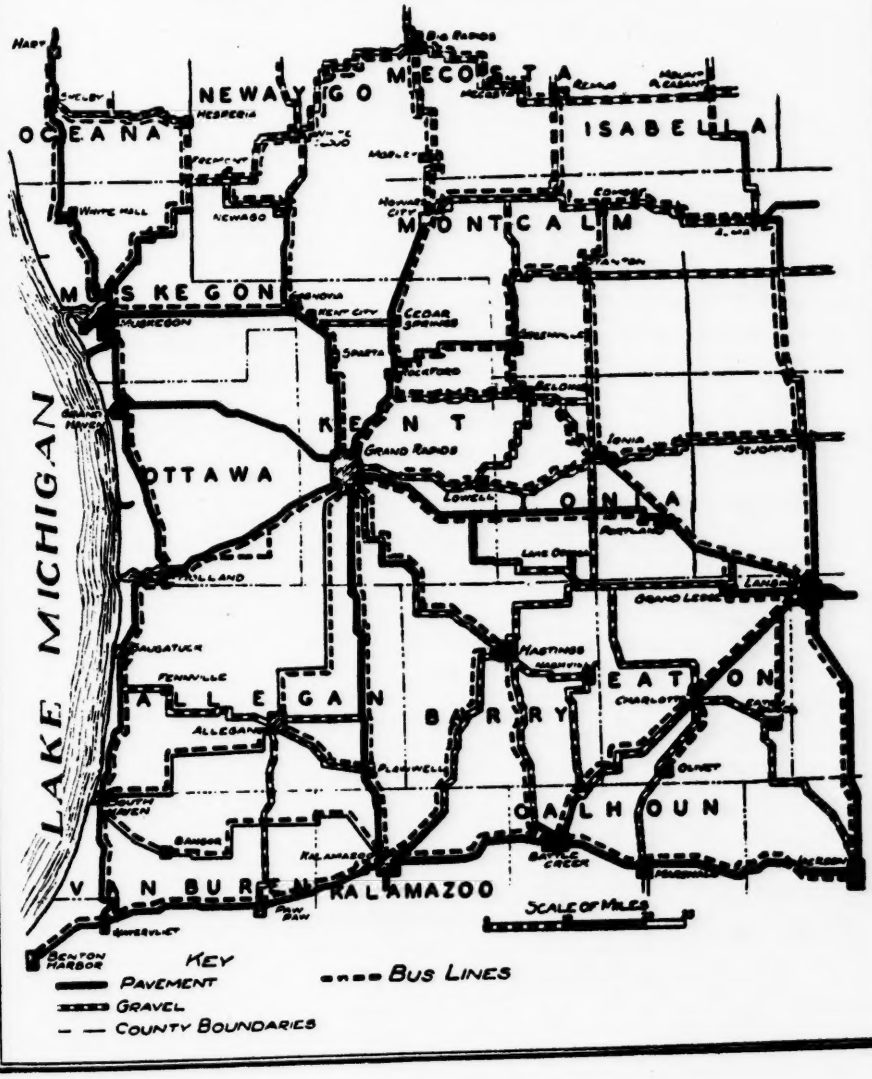
Traffic statistics relative to the daily bus miles, passengers carried per day, total yearly bus miles, and total passengers carried annually are available for a number of these companies (Table III). These statistics cover the activities of entire systems, divisional statistics not being available. Data relative to the revenue passenger mileage are not compiled by the companies. The statistics indicate the extent to which the bus activities in this region have been developed and show the

marked differences in the sizes of the various companies.

The traffic possibilities of a well-coordinated bus system are shown by the bus mileage and passenger statistics of the largest operator in the group. These statistics are given in Table IV. The tremendous increase in the traffic of this company, while due in part to the addition of new routes, represents to a considerable extent the development of new business.

Map B

BUS LINES IN GRAND RAPIDS AREA



The bus companies use a variety of equipment. Busses from a number of manufacturers are found, although the larger companies are standardizing on certain makes and types of equipment. The capacities of the vehicles vary considerably, some companies utilizing small busses of limited seating capacity, while other lines are equipped exclusively with large parlor car type coaches. Reserve equipment is maintained by all of these companies. Table V indicates the number and capacity of the bus equipment utilized by these companies.

The financial resources of these companies also vary greatly. In some cases the investment in the business appears to have been sufficient only to cover the purchase of several busses, while in other instances the investment is substantial. The present value of the equipment in most cases approximates the original investment in the business and, in the absence of extensive replacements, may indicate that little consideration has been given to the element of depreciation.

Of the companies here considered, six are owned either by individuals or by partnerships, only three being incorporated. The corporate form of organization is utilized by those operators having the largest initial and present investment (Table VI).

Rail Facilities

The Grand Rapids area is served by a number of steam and electric railways, and train service is available to almost every city and town in the region. The existing rail facilities have, with a single exception, shown practically no change in mileage during the past decade, although substantial improvements in

TABLE II. ROUTE MILES REPRESENTED BY BUS COMPANIES OPERATING IN GRAND RAPIDS AREA

Route—Grand Rapids to:	Route Miles	Additional Routes Covered	Additional Route Miles	Total System Mileage
Hastings	38	Hastings to Battle Creek		
		Hastings to Kalamazoo	65	103.0
Hastings	38	Hastings to Charlotte	30	68.0
Lansing	68	Lansing to Detroit		
		Detroit to Jackson	161	229.0
Ionia	35	None	0	35.0
Ionia	35	None	0	35.0
Belding	30.6	None	0	30.6
Greenville	33			
Howard City	34	Howard City to Edmore	25	92.0
Fremont	50			
Muskegon	45	Ludington to Muskegon to Chicago	265	390.0
Holland	30			
Allegan	37	None	0	37.0
Kalamazoo	49	Bay City to Saginaw to Flint	70.9	119.9
Totals	522.6		616.9	1139.5

TABLE III. BUS AND PASSENGER MILEAGE OF BUS COMPANIES OPERATING IN GRAND RAPIDS AREA

DAILY		ANNUAL	
Bus Miles	Passengers Carried	Bus Miles	Passengers Carried
6,370	1,530	2,420,220	581,654
1,730	440	.....	..... *
660	154	241,000	56,197
364	55	114,114	20,167
184	41	65,700	15,294
152	26	57,376	9,125
148	30	50,024	10,950
140	83	51,100	30,600
140	46	51,100	16,750
9,888	2,405	3,050,634	740,737

* Has not been operating one year as yet.

facilities have been made by the steam lines.

The abandonment in November, 1926, of the electric line between Grand Rapids, Holland, and Saugatuck, a distance of 35½ miles, marks the first substantial decrease in mileage during the period. Table VII shows the rail mileage, both steam and electric, other than street railways, in each of the various counties in this area.

The extensive use of the bus has resulted in a substantial duplication of rail routes by the motor vehicle common carriers. In fact, the establishment of bus routes in direct competition with the rail routes has been encouraged by a ruling of the Michigan Public Service Commission that, in determining the question of public convenience and necessity, it is not necessary to consider existing rail facilities, the inquiry being confined solely to the adequacy of the motor vehicle facilities.[1]

The extent to which the rail system has been duplicated in this area is shown by Map C of the steam and electric railways, together with the existing bus lines. An examination of this map shows that in some instances these three agencies all operate in direct competition with each other. In other cases, while the bus lines do not directly parallel the rail lines, they cover substantially the same territory. The bus companies, by reason of their flexibility of operation, have been better able to adjust their routes to the present needs of the territory.

A study of the existing rail facilities indicates that most of the surrounding communities enjoy relatively frequent service to Grand Rapids, either by steam or electric lines. In a majority of cases the steam roads offer the only rail service, but in several instances the electric lines represent the major service. Moreover, rail connections with Grand Rapids are frequently available only over an indirect route, and in these cases the number of trains is negligible.

On those routes where the rail and bus lines' mileage is substantially the same, the busses offer approximately 75% more units of service than the steam roads. Where interurbans and bus lines compete, the number of units offered by each service is approximately the same. Where the rail facilities are unsatisfactory because of an indirect route, the bus companies now supply practically the entire service. An analysis of the situation is given in Table VIII.

The distance between the various communities is practically the same by

TABLE IV. TOTAL BUS MILES AND TOTAL PASSENGERS CARRIED BY LARGEST COMPANY, 1924-1926

Period	Total Bus Miles	Total Passengers
June 24, 1924—Dec. 31, 1924	117,350	24,878
Jan. 1, 1925—Dec. 31, 1925	1,540,822	383,004
Jan. 1, 1926—Oct. 31, 1926	2,219,351	539,694

[1] *Rapid Railway Company et al.* v. *Michigan Public Utilities Commission*, P.U.R. 1924B, 585.

steam, electric, or bus line where the rail route takes a substantially direct course. Where the rail line is circuitous, the bus line offers a materially shorter route. The operating schedules for the various routes indicate that the "bus time" compares very favorably with the time made by the average passenger train in this section. On important through rail routes, however, the railway offers a material saving in time. On circuitous routes, the time required for the rail journey is often excessive as compared with the bus schedule.

The fare on the steam lines is, in general, slightly higher than that of the electric lines for similar distances. Bus fares approximate rail fares closely for equivalent distances. The difference in fares is particularly important where the rail route is substantially longer than the bus route. A summary of these factors is given in Table IX.

These comparisons indicate that the bus performs its major service in this territory, not by reason of any material saving of time or fares over similar rail routes, but because of the number of units and the quality of service available for the public, and also because of the substantially shorter distances represented where rail lines follow a roundabout route.

TABLE V. BUS EQUIPMENT OF COMPANIES OPERATING IN GRAND RAPIDS AREA

Busses in Daily Operation			Busses Used as Reserve Equipment		
Number	Total Seating Capacity	Average Capacity per Bus	Number	Total Seating Capacity	Average Capacity per Bus
45	1,215	27	12	324	27
12	302	25	2	52	26
4	68	17	3	45	15
4	52	13	2	28	14
2	36	18	1	15	15
1	24	24	1	24	24
1	20	20	1	15	15
1	20	20	1	20	20
1	19	19	1	19	19
71	1,756		24	542	

TABLE VI. FINANCIAL RESOURCES AND TYPE OF OWNERSHIP OF BUS COMPANIES OPERATING IN GRAND RAPIDS AREA

Financial Resources		Type of Ownership
Total Investment in Bus Business	Present Value of Equipment in Use	
$709,312	$662,621	Incorporated
160,106	154,211	Incorporated
34,600	30,479	Incorporated
20,300	17,500	Not Incorporated
15,000	11,000	Not Incorporated
14,500	14,500	Not Incorporated
14,000	8,500	Not Incorporated
8,000	9,000	Not Incorporated
4,885	8,423	Not Incorporated
$980,703	$916,234	

Long-Distance Bus Service

Considerable attention has been given by one of the larger bus operators to the development of through service between Grand Rapids and Chicago, a distance of 210 miles. A second company, operating as an interstate carrier in Michigan, has also recently extended its activities into this field. Both companies operate over the same route and their equipment is of a similar type and quality. A combination bus and rail trip is optional for the passenger of this second company, and he may elect either to transfer to an interurban line at Michigan City, Indiana, for the balance of the journey into Chicago or continue by bus. The rail–bus combination shortens the time required for the journey by one hour.

A rate war between these companies has resulted in the round-trip fare between Grand Rapids and Chicago being cut from $10 to $6 by one of the competitors. The railway fare is $13.26 for the round trip.

Direct and frequent rail service is offered by two steam lines between Grand Rapids and Chicago. The faster trains require but 4 hours and 55 minutes for the trip, and a number of the others complete the journey in 6 hours. The trip by bus requires approximately 8½ hours.

Exact statistics are not available as to the extent to which these bus lines have been able to attract through passengers from the railroads. Prior to the inauguration of the present rate war, one of the bus companies received an average fare of $2.20 on this route, with a single through fare of $6. Observation of the traffic while a passenger indicates that the through traffic carried by these companies, except during the resort season, is relatively small.

Through bus service is also offered by another company between Grand Rapids and Detroit via Lansing, a distance of 165 miles. This service is operated in direct competition with a through rail route. Five trains and six busses are available daily between these points. The mileage is substantially the same for both carriers, but the train schedule is 3 hours and 40 minutes as compared to 5 hours and 40 minutes for the bus. The rail fare is $5.49 and the bus fare is $5.25. A substantial local traffic is handled on this route, but while the through traffic between Grand Rapids and Lansing and Lansing and Detroit is considerable, apparently little through traffic is carried over the entire route.

TABLE VII. STEAM AND ELECTRIC RAILWAY MILEAGE IN THE GRAND RAPIDS AREA*

COUNTY	RAILWAY MILEAGE		
	Total	Steam	Electric
Kent	221.9	192.9	29.0
Kalamazoo	178.5	141.5	37.0
Allegan	154.5	104.0	50.5
Montcalm	122.5	122.5	0.0
Ottawa	117.0	70.5	46.5
Muskegon	108.5	94.5	14.0
Van Buren	99.0	99.0	0.0
Eaton	96.5	96.5	0.0
Ionia	79.5	79.5	0.0
Newaygo	68.5	68.5	0.0
Mecosta	63.0	63.0	0.0
Barry	61.0	61.0	0.0
Total	1,370.4	1,193.4	177.0

* Figures are prior to abandonment of Grand Rapids, Grand Haven, and Holland Railway, November, 1926.

The Interurban Situation

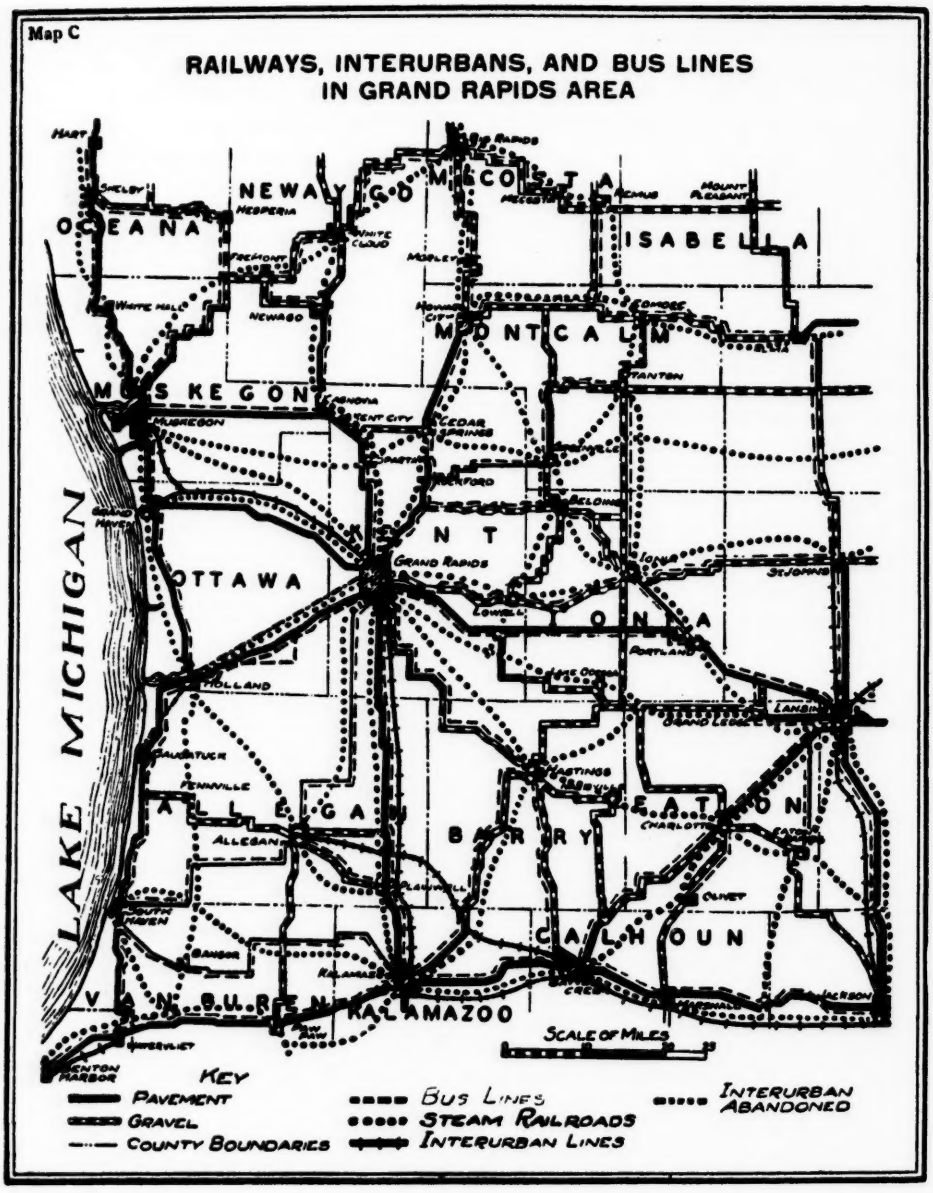
The recent abandonment of the interurban line between Grand Rapids, Holland, and Saugatuck is indicative of the extent to which the general use of the automobile, both private and public, has curtailed the local passenger traffic of the rail carriers in this area.

The effect of the automobile on the revenues of the interurban railways in this area is evident from the statistics embodied in Chart I. These statistics portray the traffic experience of a representative company in this section and are of peculiar significance because, in spite of a constantly increasing population, the interurban traffic rapidly diminished. This diminution in traffic represents almost entirely the inroads of the private automobile, as the bus did not become a factor of importance in Michigan until 1923.

An exact appraisal of the effect of the bus on the interurbans in this section is difficult, but an estimate by one person fully competent to judge the situation was to the effect that with the competition of private automobiles alone the interurbans could make operating expenses and pay fixed charges, but with the advent of the bus, they could not even meet their operating expenses.

Of the three interurban companies which formerly operated in this area,

one has been abandoned entirely, one is now in the hands of receivers, and the third, a part of a larger system, is making a determined effort to maintain its position as a transportation agency. Both of the surviving companies have recognized the possibilities of the bus, and one company is now operating a coordinated bus service paralleling its own lines, while the other has recently



applied for permission to operate a similar service in its territory.

The Common Carrier Truck

The development of common carrier truck lines in the Grand Rapids area has been dependent upon essentially the same factors that attracted the bus operators, that is, good roads, a well-distributed population, and relatively short distances.

The extent to which this section is served by the motor truck is shown on Map D. Many of the truck lines in the Grand Rapids area operate over substantially the same routes as the bus lines, as may be seen by comparing Map D with Map B. There are now outstanding 28 certificates of convenience and necessity for truck lines operating out of Grand Rapids. A majority of these certificates are held by operators who are engaged exclusively in public transportation, but some act as common carriers only on occasion.

TABLE VIII. UNITS OF SERVICE OFFERED BY RAIL AND BUS LINES IN GRAND RAPIDS AREA

GRAND RAPIDS TO:	UNITS OF SERVICE (per day)		
	Number of Trains	Number of Inter-urbans	Number of Busses
Muskegon	1	10	14
Grand Haven*	1	10	0
Holland	5	0	12
South Haven†	1	0	5
Kalamazoo	7	9	6
Hastings	5	0	5
Lansing	5	0	7
Ionia	3	0	8
Belding†	1	0	3
Greenville†	1	0	6
Big Rapids	3	0	3
Fremont†	1	0	4
Total	34	29	73

* No direct bus connection.
† No direct train connection.

Complete statistics are not available for all truck lines in this area, but a study of 27 operators covering approximately 1,400 miles of route reveals considerable variation as to the average length of route. An analysis of the route mileage of the various lines is given in Table X.

Of the 27 routes here considered, only 7 extend for 30 miles or less, and 7 routes are between 31 and 40 miles in length. Of the entire group, 23 routes are 50 miles or less in length, which would indicate that the truck operators as a whole are confining their activities to such distance zones as are economical for motor truck transportation. A partial explanation of this situation may be found in the fact that the principal centers in this section are approximately 50 miles distant from Grand Rapids.

The three lines having an average route mileage of 165 miles operate between Grand Rapids and Detroit in direct competition with the steam and electric railways. Overnight service between these cities is given by the truck companies and also by the interurban, while the average delivery time required for the steam lines is three days. A large portion of this traffic consists of through shipments between the two cities, the major part of the remainder being represented by shipments between Grand Rapids and Lansing, a distance of 72 miles. One company operates a strictly through night service with a single stop at Lansing, freight destined for intermediate points being unloaded at Lansing for distribution the following day by local trucks. A material reduction in operating time is effected by this plan. The economy of this long-distance truck service at present rates is questionable, although the convenient

overnight delivery gives a substantial advantage to the shippers.

The motor trucks utilized for common carrier purposes in this section are of relatively limited capacity. Of 50 trucks operated by the carriers in this area, about 26% have a capacity of 1 to 1½ tons. Trucks of 2 to 2½ tons capacity constitute 30% of the fleet and the 3 to 3½ ton trucks, 39%, while the 4- and 5-ton trucks or larger represent but 3% of the total number.[2]

That the majority of the truck lines are operated with a small investment in equipment is indicated by Table XI.

The extent to which the truck lines in this area serve territory already supplied with rail facilities is indicated by Map E. In practically every instance, the rail lines are paralleled by one or more truck routes, and on two of the routes interurban freight service is available in addition to that furnished by the steam road and the truck. The extent of the duplication of services is given in Table XII.

The freight rate on less than carload shipments by truck is practically the same as that charged by the rail carriers for a similar distance. An analysis of the first-class freight rate on less than carload shipments between Grand Rapids and representative points in this section shows the extent to which truck rates have been adjusted to meet rail tariffs. In some instances the evident parity of truck and rail rates is destroyed, as some of the trucking companies have established a minimum charge of 50 cents per single shipment.

The truck lines operating in this area offer a pick-up and delivery service in the various communities through which they operate, no additional charge being made for this service. But in the city of Grand Rapids, and also in Lansing and Detroit, these companies, almost without exception, restrict the pick-up service to shipments in excess of 1,000 pounds, and store-door delivery is made within the business district in Grand Rapids at an additional charge of 50 cents.

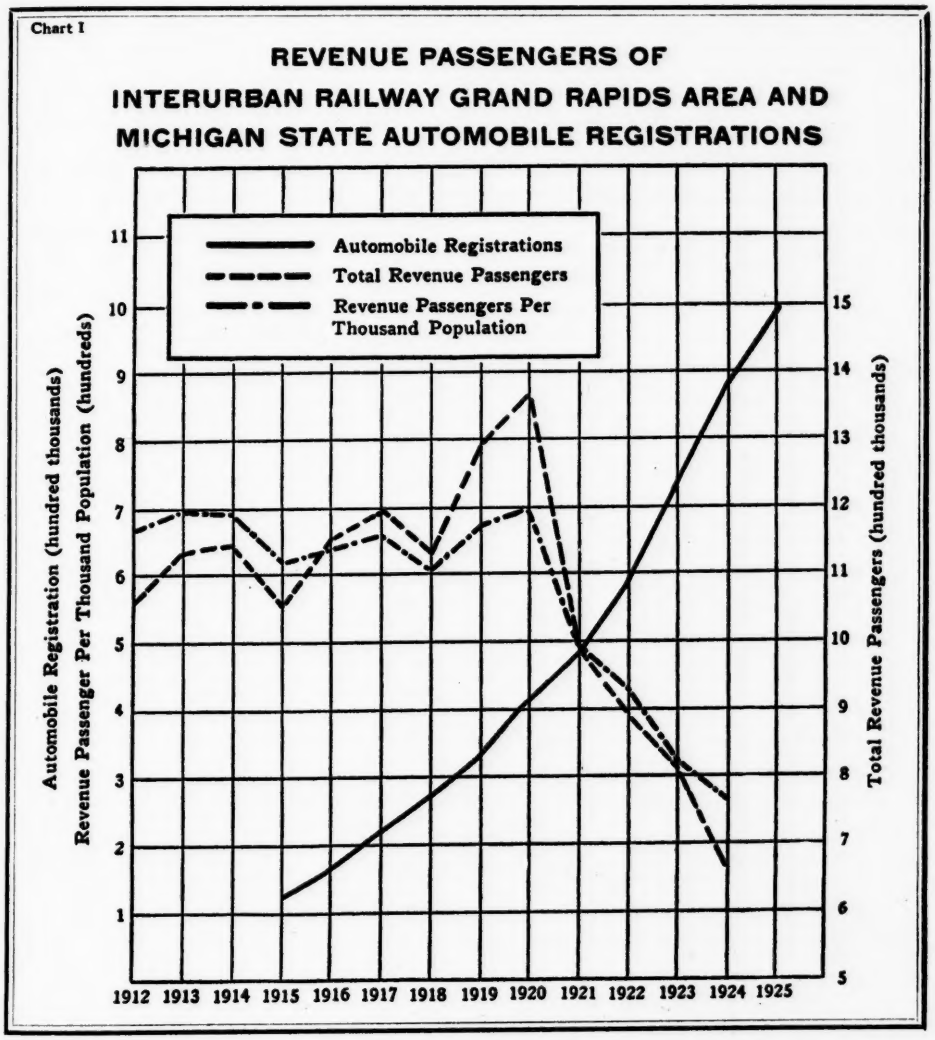
[2] A different picture is given when these comparisons are in terms of total capacity. The 50 trucks surveyed have an aggregate capacity of 153 tons. Those having a capacity of 1 to 1½ tons represent 11% of the total capacity; those of 2 to 2½ tons capacity constitute 25% of the fleet's capacity; the 3 to 3½ tons trucks represent 38% and the 4- and 5-ton trucks, 26% of the total capacity. The presence of two 20-ton units, consisting of truck and trailer, throws undue emphasis on the large capacity units.

TABLE IX. COMPARISON OF RAIL AND BUS SERVICE IN GRAND RAPIDS AREA AS TO FARE, TIME, AND DISTANCE ELEMENTS

GRAND RAPIDS TO:	FARE			TIME REQUIRED FOR TRIP (hours)			DISTANCE (by)		
	Train	Electric	Bus	Train	Electric	Bus	Train	Electric	Bus
Muskegon	$1.44	$1.19	$1.25	1:35	1:50	2:10	40	36	45
Grand Haven	1.14	1.03	1.75	1:15	1:35	3:00	31	31	58
Holland	.92	.....	1 00	1:35	.....	1:25	25	.....	30
South Haven	2.49	.....	2.20	5:40	.....	1:45	85	.....	63.5
Kalamazoo	1.76	1.49	1.49	1:20	1:30	2:15	49	56	49
Hastings	1.18	.....	1.15	0:50	.....	1:45	32	.....	38
Lansing	2.35	.....	2.25	1:30	.....	1:20	65	.....	68
Ionia	1.29	.....	1.30	1:10	.....	1:40	34	.....	35
Belding	1.59	.....	1.25	6:50	.....	1:25	50	.....	30.6
Greenville	1.83	.....	1.40	7:15	.....	1:25	57	.....	33
Big Rapids	2.02	.....	2.00	2:00	.....	3:00	56	.....	60
Fremont	2.13	.....	2.00	3:30	.....	2:20	58	.....	50

The shipments of l. c. l. freight by truck from Grand Rapids have been facilitated by the organization of a co-operative association of 15 of the principal trucking companies operating out of the city. This association maintains a warehouse and transfer depot in the city, and all trucks of the associated companies operate from this point. Freight stations are also maintained in a number of communities through which these lines operate. The members operate over separate routes, but all shipments are handled under the bill of lading of the association. Published tariffs are used, the standard railway classification being the basis of their rate structure. All damage claims are settled by the association, and a definite operating schedule is kept.

Chart I


REVENUE PASSENGERS OF
INTERURBAN RAILWAY GRAND RAPIDS AREA AND
MICHIGAN STATE AUTOMOBILE REGISTRATIONS
Automobile Registrations
Total Revenue Passengers
Revenue Passengers Per Thousand Population
Automobile Registration (hundred thousands)
Revenue Passenger Per Thousand Population (hundreds)
Total Revenue Passengers (hundred thousands)
1 2 3 4 5 6 7 8 9 10 11
5 6 7 8 9 10 11 12 13 14 15
1912 1913 1914 1915 1916 1917 1918 1919 1920 1921 1922 1923 1924 1925

Freight shipments originating in the city are picked up at this station or at the customer's door, if the shipment exceeds 1,000 pounds. Through freight is interchanged between the members, the members prorating the revenues. Truck operators who are not members of the association may also deliver goods to this warehouse for shipment, provided the transportation charges

are prepaid, but no prorating is done between members and non-members.

Interurban Freight Traffic

The freight traffic of the electric interurban lines operating out of Grand Rapids has been an important source of revenue for these carriers. During the navigation season on Lake Michigan, a considerable volume of l. c. l. freight is handled between Grand Rapids and the lake ports for trans-shipment by boat to Milwaukee and Chicago. In the case of one of the electric railways, this freight traffic amounted to approximately 575,000,000 ton miles in 1923 and represented 32% of the total operating revenue of the company in 1924. After the recent abandonment of electric service between Grand Rapids and Holland, arrangements were made for the handling of the freight traffic between these points by motor truck.

The remaining interurbans are making an aggressive effort to retain their freight traffic and have offered special, fast freight facilities with overnight service to a number of the more important cities in the state as well as to Chicago and Milwaukee by boat. Arrangements have also been made with an established truck company to supply feeder service to the north of Grand Rapids, and shipments to Detroit by interurban will be delivered by truck to the consignee's address, if within the business area, at a nominal charge of 10 cents per hundredweight.

TABLE X. AVERAGE ROUTE MILEAGE OF TRUCK LINES IN GRAND RAPIDS AREA

Route Mileage	Average Mileage	Number of Lines
0–10 miles	0	0
11–20 miles	17	3
21–30 miles	24	4
31–40 miles	35	7
41–50 miles	44	9
51–60 miles	60	1
61 or more miles	165	3

The l. c. l. short haul traffic of the steam lines in this area has been reduced to a minimum. Statistics are not available covering the situation in this area alone, but a report by one of the principal carriers in this region covering the state, indicates that the l. c. l. traffic is now practically negligible. In 1924, according to this report, the l. c. l. freight handled by this company constituted only 2.5% of the total freight traffic. A portion of this l. c. l. traffic represented shipments over a long distance, which were not suited for truck hauling.[3] The railways appear to have accepted the situation as inevitable and are concentrating on handling the traffic for which they are best adapted. No definite effort seems to have been made to regain this lost l. c. l. business.

Snow Removal

The snowfall in the Grand Rapids area is often heavy and at times is a serious obstruction to wheel traffic. Until recently, each county was responsible for the maintenance of the highways within its boundaries and while some counties were active in snow removal, others did not concern themselves with road maintenance or snow removal during the winter months. As a consequence, some of the principal highways were impassable to wheel traffic for some time after each heavy snowfall.

A number of the bus lines were active in the work of snow removal and in some instances were forced to assume practically the entire burden of keeping the roads open for travel. One

[3] F. H. Alfred, president, Pere Marquette Railway, *Railway Age*, January 16, 1926, p. 233.

company operated 10 speed plows on its busses and also maintained a 10-ton rotary plow for use in heavy drifts. This equipment was placed in operation with the beginning of each snow and operations continued until the storm ceased and the danger of drifts was past. As a result of these activities, their busses were able to operate every day during the winter, except for one day. On this day the road was cleared but the blizzard was so severe that the driver could not see, making the hazards of operation too great to warrant running the busses.

The recent activities of the state in regard to snow removal on state highways have proved of marked assistance in keeping the highways open for traffic. Provisions were made for keeping 5,610 miles of state trunk highway open during the past winter.[4]

Regulation

All common carrier motor vehicle operators in the state of Michigan are required to secure a certificate of convenience and necessity from the Public Service Commission as a condition of operation. Companies operating as common carriers prior to the adoption of the present regulatory measures in June, 1923, were declared to be eligible for a certificate by reason of such operation.

In considering the question of convenience and necessity, the rule has been established that existing rail facilities are not to be considered, the only question involved being the availability of satisfactory motor facilities. Thus the element of competition between substitute transport services has been ignored. Yet competition between motor vehicle lines has not been encouraged and where an operator enjoying a certificate has demonstrated his ability adequately to serve the public, a competitive line has not been authorized. While a number of motor vehicle carriers are actually competitive, this condition exists because these lines were in operation prior to the enactment of the present regulations in 1923.

Bus operators are required to provide insurance or an indemnity bond of a recognized company to protect the passengers in case of personal injury or damage to property. This bond or insurance policy varies according to the capacity of the vehicle operated. Common carrier truck operators are also required to secure a satisfactory indemnity policy to cover the value of the property which they may transport, as determined by the commission.

All carriers are required to submit a detailed annual statement of their resources and expenses. The larger operators are able to supply rather comprehensive statements regarding these items, but the statements supplied by the majority of the smaller companies are little more than rough approximations.

As yet, little attention has been given to the subject of rate regulation. Rate schedules are required to be filed with

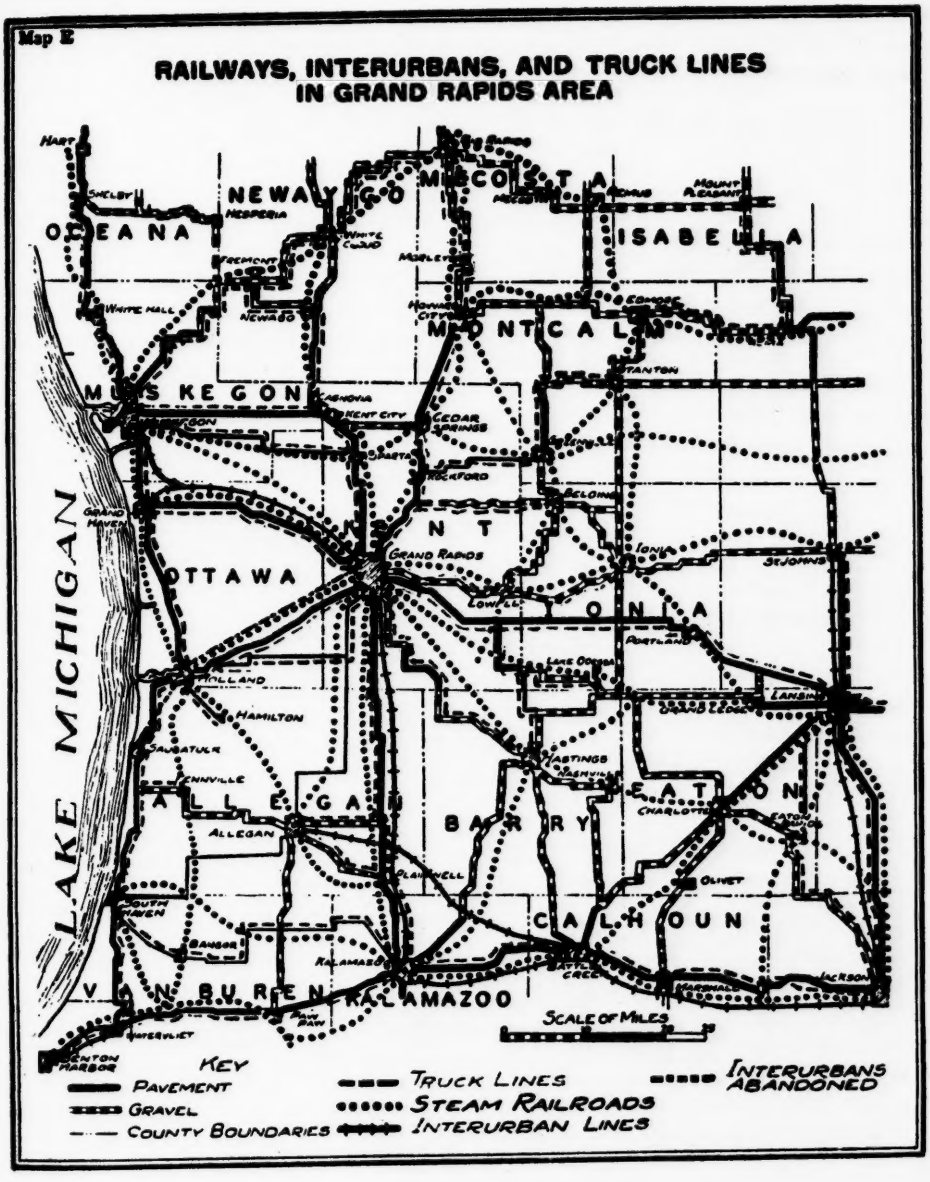
TABLE XI. PRESENT VALUE OF EQUIPMENT OF TYPICAL TRUCK COMPANIES IN GRAND RAPIDS AREA

Present Value of Equipment	Number of Companies
$1,000 or less	4
$1,200—$1,500	2
$3,500—$5,500	2
$8,000—$12,000	3
$15,000—$20,000	2
$20,000 and over	2

[4] G. C. Dillman, "The Future Highway in Michigan," *Michigan Roads and Pavements*, October 28, 1926, p. 5.

the commission and are assumed to be based on a reasonable charge for the service performed. In the absence of complaint from the users, it is supposed that the rates are reasonable.

The customary police regulations relative to the protection of the public welfare and safety are held to be applicable to the common carrier motor vehicle. Regulations regarding the speed and manner of operation of the motor vehicle have been enacted, and



all carriers are assumed to be operating in accord with these provisions. The practice of bus carriers of stopping to load and discharge passengers while occupying the regular traffic lane on the public highway has recently contributed to several serious accidents, and public attention has been drawn to the necessity of restricting bus stops in the interest of public safety.

Taxation

All busses and trucks operated in Michigan are required to secure a license covering the annual registration of the vehicle. The fee for this license is $1 per hundredweight of the vehicle. In addition, a gas tax of 2 cents per gallon is in force throughout the state.

That the tax burden on the common carrier motor vehicle is not excessive and does not constitute an obstacle to the profitable operation of the vehicle, is the opinion of representative local bus and truck operators. One of the large bus companies, with an average operating cost of 25 cents per bus mile, reports that the gas tax amounts to but three-tenths of a mill per bus mile. In view of the excellent highways being constructed from the receipts of the present tax, these requirements may be said to favor the development of highway transport.

Major Economic Problems in Motor Carrier Development

Three major, but interrelated, problems of public significance emerge from this description of the development of motor transport facilities in the Grand Rapids area: (1) The problem of competition; (2) the problem of regulation; (3) the problem of financing.

The results of permitting competitive forces to operate freely have been a marked duplication of transportation services and severe losses for rail carriers. These losses have been particularly embarrassing to the interurban electric lines, which have been obliged to meet the competition as best they could or go out of business, since they had no long-haul traffic to fall back upon. The question arises whether this degree of competition is economically wasteful even though temporarily the users of the transportation services undoubtedly benefit from this struggle for the market, or whether the worst features of this competitive situation might not have been avoided. The greatest advantages of motor service were, of course, offered where rail routes were circuitous, but even where the two routes were parallel the motor services seemed to be regarded as superior from the standpoint of variety, timeliness, or flexibility of service, more than from the standpoint of rates.

TABLE XII. COMPETITIVE TRUCK AND RAIL SERVICE BETWEEN TYPICAL POINTS IN THE GRAND RAPIDS AREA

GRAND RAPIDS TO:	COMPETITIVE SERVICE		
	Truck	Rail	Total
Hastings	2	1	3
Caledonia*	3	1	4
Lake Odessa	1	1	2
Alto*	2	1	3
Lansing (via Portland)*	4	1	5
Ionia	2	1	3
Lowell*	3	1	4
Belding	1	1	2
Greenville	1	1	2
Big Rapids	1	1	2
Rockford*	2	1	3
Fremont	1	1	2
Sparta*	2	2	4
Muskegon	6	2†	8
Holland	2	1	3
Kalamazoo	1	3†	4
Allegan*	3	2	5
Wayland*	2	1	3

* Local routes which are also on through route.
† Interurban and steam lines.

On the other hand, investors in rail properties must suffer from partial displacement of short-distance rail service, unless the motor services are taken over by the railways, steam and electric, and further reorganized as a coordinated unit of transport service. From the point of view of economy—that is to say, the avoidance of wasteful duplication and the conservation of existing capital investments—such a consolidation movement has many advantages, despite the possibility that certain passengers and shippers might suffer some inconvenience in the readjustment. Whether the forces of competition, already somewhat modified by consolidations among the motor carriers themselves, will result in complete consolidation, as has happened in many other areas, remains to be seen.

The proper relation of regulatory agencies to this competitive expansion of transport service is a difficult and many-sided problem. It is possible that a more orderly development, supervised by the regulatory commission, might have lessened much of the wasteful duplication resulting from practically unrestrained competition. On the other hand, the same quantity, quality, and rate of improvement of service might not have been made available to the carriers' customers. The Michigan Public Service Commission has as yet not seen fit to formulate and follow a carefully worked out policy along these lines.

As for the future, experience has demonstrated the desirability of closer supervision by public agencies in the interest of stability. The extension of regulatory power over the affairs of motor carriers must naturally await legislative authorization, but in some phases of the situation where such authorization has been given it has not been used to its fullest extent. No valid economic reason exists why common carriers by motor should be less carefully or completely regulated than common carriers by rail. If this principle is made effective, many of the economic wastes of unrestrained competition might be eliminated.

The financial problems have both public and private aspects, and require a more complete analysis than has been given here. Complaint has been made in some quarters that motor carriers have been subsidized to the extent that they pay proportionately less for their use of public highways than carriers by rail have to pay for the construction and maintenance of their rights of way. If a factual investigation shows this to be true in the Grand Rapids area, considering taxes of all kinds, snow removal and other expenses, it may then be said that bus and truck operators

TABLE XIII. COMPARATIVE RAIL AND TRUCK RATES IN GRAND RAPIDS AREA
(First-class l.c.l. shipments)

GRAND RAPIDS TO:	DISTANCE		RATE PER 100 LBS.		
	By Rail	By Truck	Rail (cents)	Interurban (cents)	Truck (cents)
Hastings	32	38	42½	.....	45
Caledonia	16	22	36	.....	35
Lake Odessa	32	34.5	42½	.....	47
Lowell	18	18	36½	.....	42
Greenville	57	33	43½	.....	45
Big Rapids	56	60	53½	.....	60
Howard City	44	38	46½	.....	52
Rockford	14	14	34	.....	35
Sparta	15	13	34	.....	34
Muskegon	40	45	43½	43½	43½
Grand Haven	31	29.5	42½	42½	45
Coopersville	15	15	36½	36½	38
Holland	25	30	38½	.....	38½
Kalamazoo	49	49	48	48*	48
Wayland	21	21	38½	38½*	38½
Plainwell	37	31	43½	43½*	43½
South Haven	85	63.5	49	.....	49½
Lansing	65	72.5	49½	.....	50
Detroit	152	165	67½	67½†	67½

* Minimum charge, 50 cents for single shipment.
† 10 cents per 100 pounds extra for store-door delivery.

have enjoyed a competitive advantage through public subsidy and that a different tax policy may be desirable.

Of the many sorts of financial problems which public utilities must meet, the adequacy of depreciation reserves to maintain the investors' capital unimpaired appears to be the most important one for a carrier which is in the pioneer stage of development. Study of the Grand Rapids area thus far does not indicate that either motor carriers themselves or regulatory agencies have given sufficient thought to this matter. As the network of transportation services further develops and perhaps becomes more stabilized, more attention will be given to depreciation requirements, as well as to the problems of competition, regulation, and taxation. The above general survey, though largely descriptive, presents data which are basic to a more detailed examination of these specific problems.

THE INSTITUTE'S STUDY OF LAND TENURE

By GEORGE S. WEHRWEIN

A LAND tenure system embraces not only the tenants but men in all other stages along the road to ownership. In agriculture we distinguish the hired man, the cropper and tenant, the encumbered owner, the "free" owner, and finally the retired farmer who is often a landlord. As a general rule, these classes are not fixed, for men move freely from one to another. In fact, there is a general upward movement from one stage to another with land ownership as the goal. This is called the "agricultural ladder," and is the basis of the American system of land tenure.

Upon this hypothesis the Institute for Research in Land Economics and Public Utilities is now conducting a series of field studies of farm land tenure. The purpose is to study in a qualitative way the steps men are taking in their advancement to land ownership and how efficient each step is in the process. It is hoped that the results will aid in the establishment of proper institutions of land tenure.

It was planned to select two contrasted areas for the first surveys, one in central Illinois in which the proportion of tenant farms is over 60%, and the second in eastern Wisconsin where there are very few tenants operating the farms. Upon consulting with Professors L. C. Stewart and H. M. C. Case of the University of Illinois as to the area to be selected in Illinois, it was found that they had planned a similar study of Hensley township to be conducted by Gustav Kuhlman. Hence another area was chosen for the Institute's study, namely, Walnut Grove township in Knox County in western Illinois, an area with about 50% of tenancy and with more stock feeding than in Hensley township. The town of Newton in Manitowoc County, Wisconsin, in a dairy section, was the third area chosen.

In this number of the *Journal* the results of the Hensley township study are presented. Mr. Kuhlman has placed the emphasis upon the migration from the farms as well as on the agricultural ladder. The studies of the Walnut Grove township and of the farm mortgage situation in Newton township will appear in the November issue.

A STUDY OF TENANCY IN CENTRAL ILLINOIS

By GUSTAV W. KUHLMAN

DURING successive periods in history the area which is now Champaign County, Illinois, has been in the hands of, or claimed by, the Indians, the French, the Spanish, the English, and the United States. The first white man came to what was then a wilderness in 1822 and became a squatter on the public domain. Others followed in rapid succession, settling along the Sangamon River, where the timber upon which they depended so much was convenient. Many of the early settlers came from Indiana and adjacent regions on the wave of the westward movement. It is interesting to note the similarity of behavior between the forebears and the present generation so largely descended from them. Like the farmers of today, a few of the pioneers migrated to other states after leaving the county, while the majority became substantial citizens of this community and their descendants are now the backbone of its society.[1]

Agriculture and Crops

Of the total area in Hensley township, only 12.7% was not in crops in 1925. This was utilized as farmsteads, blue-grass lots, roads, and lanes. Fifty-six acres of woods pasture constitute the entire acreage of non-tillable land. The 1,969 acres of blue-grass pasture which could be cultivated are for the most part virgin soil. This comparatively large acreage of tillable land in blue-grass rather than in legumes results primarily from the desire of landowners to have as large an acreage as possible in cash crops each year and from their objection to undergoing the expense of additional fence construction and maintenance. As a result the pasturage on most farms is confined to the lots adjacent to the buildings.

Less than one-tenth (1,722 acres) of the crop land was in legumes (see Chart I) and of this over two-fifths (755 acres) was in clover, two-fifths (681 acres) in soy beans, nearly one-fifth (216 acres) in clover and timothy mixed, and only one twenty-fifth (70 acres) in alfalfa. A much larger acreage of legumes is sown each spring, but clover failures are frequently experienced, and in addition the general practice is to plow under the clover growth for fertility either during the same fall or during the following spring.

Corn is the predominant crop, as indicated by the fact that nearly 51% of the crop acreage was devoted to its production. Oats ranked second with 31.4%, and winter wheat third with 7%. Neither rye nor spring wheat was produced in 1925.

The use of legumes in the rotation is appreciated by the majority of the farm operators of Hensley township but not by many of the absentee landlords. A number of farmers have not attempted to grow clover for some time, but usually the practice is to sow it in the small grain for fertility. Many grain

[1] The following analysis is based upon a detailed study of one township, Hensley, in Champaign County.

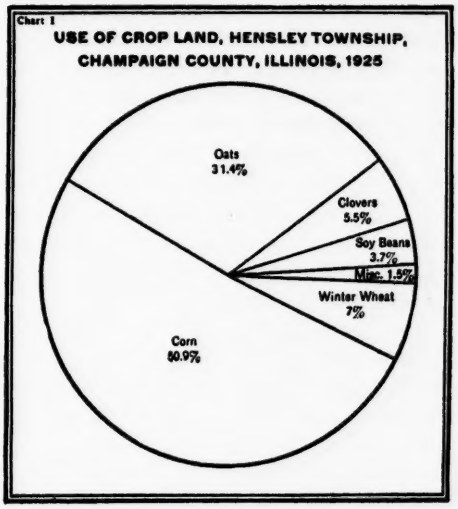
farmers have no desire to produce a crop of clover hay because they have very little productive live stock to consume it. A decrease in the acres sown to clover was evident in 1925 and again in 1926. Much of the 1925-1926 acreage was winter-killed, thus leaving practically no clover to be harvested for hay in 1926.

The Size of Farms

A group of 120 farms, comprising a total of 22,944 acres, was included in this study. The farms ranged in size from 18 to 480 acres, averaging 191 acres. Farms of approximately 240 acres were more numerous than those of any other size, their number totaling 39, or about one-third of all the farms. In fact, the acreage of this group exceeded that of any other, constituting 37% of the total acreage. It is interesting to note the preponderance of the larger units. Farm management data secured from actual records on hundreds of Illinois farms tend to substantiate the contention that this situation is the practical result of the greater relative profitableness of the large unit in grain farming. The 160-acre farm, a survival of the old homestead system, remains in use largely because it can be operated by one man, with a little hired help during the busy season of the year. The smallest farms are commonly occupied by either the youngest operators or, less frequently, by the oldest men, while the largest farms are sought by operators who have the dependable help of sons.

Farm Laborers

With a diminishing rural population the labor supply decreases, resulting in a decrease in the relative amount of human power available for farm operations. This may be partly offset by improved labor-saving methods, by a less extensive type of farming, or by increased work on the part of children, women, and old men. Moreover, farmers have been obliged to neglect some kinds of improvement and upkeep work on the farms in recent years.



Much of the work on farms in this area, fortunately, is adapted to the capabilities of boys in the farm families. Perhaps the bulk of the corn cultivating is done by boys under 16 years of age. As this period marks the peak load of labor requirements in a grain farming system, the help of the children enables the farmer to handle a maximum of crop acres with a minimum of hired labor.

Of these 120 farms, 62 hired monthly labor averaging 9½ months per farm. The hired laborers in this region are mostly transients. This includes those men who come along unannounced and are hired for a few months in summer or for the corn husking season in autumn. Many of these hired men, most of whom have come from small farms in Kentucky, Tennessee, and

southern Illinois, after acquiring the knack of Corn Belt methods, become efficient laborers and fairly good tenants. Extra work that requires more laborers at one time than the ordinary farm has available is often done by exchanging help with neighboring farmers. This procedure concentrates the workers on a job where the work can be done more efficiently by several men, or where a group of men is absolutely essential, as in threshing operations.

The amount of hired labor on many of these farms is governed by the availability of experienced men, who must also satisfy the employing farmer as being of a personally desirable type to have about the farm and home regardless of the work which they can do. All operators who had rented additional land on which there were dwellings preferred to hire married men. The latter were credited with being more stable than the single men. This arrangement also relieves the farmer's wife of the necessity of caring for laborers in her home.

So-called part-owner tenancy is important in its relation to the farm labor question. Farmers often adjust their business to their labor supply by renting from others additional land to furnish work for the workers available to them. Corresponding in one way to this practice is one which may be called part operating land ownership. Some farmers rent out part of their land when they themselves have more than they can handle to good advantage.

TABLE I. AVERAGE NUMBER OF YEARS THAT 120 FARMERS WERE ON EACH "RUNG" OF THE "AGRICULTURAL LADDER," HENSLEY TOWNSHIP, 1926

	Owners	Tenants
Number of operators	43	77
Average number of years spent:		
at home after age of 16	6.0	4.5
as hired man away from home	0.5	2.4
in occupations other than farming	1.5	1.4
as tenant	4.0	11.7
Total number of years spent	12.0	20.0

The "Agricultural Ladder"

The steps which men frequently take before becoming farm owners are sometimes called "rungs" in the "agricultural ladder" and include the stages of hired man, tenant, and owner. Many farm owners, however, have not taken all these steps. Some, on the other hand, have worked at non-agricultural occupations.

The complete tenure histories of 120 farm operators were obtained in the survey. Of these 120 farms, 77 were operated by tenants and 43 were operated by owners. Of the latter farms, 17 included additional rented land, averaging 100 acres to the farm. All but three of these men were sons of farmers and had spent their boyhood in an agricultural environment, having had the training in farm work which goes with this environment. The remaining three were sons of men in occupations other than farming.

With only one exception, which was a cash lease, the form of lease found in this area calls for an equal sharing of the crops between landlord and tenant. Cash rentals of $6 to $10 an acre are the usual rates paid by tenants for hay and pasture lands.

1. *Work at home.* In the group of owner-operators studied, a period of six years after the age of 16 was the average time spent working on the home farm. All those who worked at home maintained that they did a man's work after the age of 10 years. Most of the

farm boys left home immediately after attaining their majority. A large percentage of them married soon after this move and then rented neighboring farms. The sons who did not become farmers found their way to the cities.

2. *Hired men away from home.* Only 28% of all farmers had worked as hired men away from the home farm. The average length of such service was 6 years. Nearly 20% of the entire group worked at non-agricultural pursuits at some time. Although the average period of such employment was 7½ years, this was not a serious handicap, because much of the experience acquired was useful in later years when these men became farmers.

Very few of these men had taken the step directly from being a hired man to being an owner of a large farm. Of all the owner-operators, 60% were tenants before they owned farms, 14% had worked on their home farms until acquiring ownership, nearly 5% came from occupations other than farming, 7% had previously owned other farms, while of 14% the earlier status is not known.

Figures for the tenant group are different. Of 77 men who are now tenants, 61 worked at home with their fathers after the age of 16 for an average of 5½ years; 29 were hired men away from home for an average of 6.3 years; 17 worked in non-agricultural occupations for an average of 6 years, and all have been tenants for an average of 11.7 years.

3. *The tenant stage.* At least two-thirds of the present farmers were tenants at some time in their lives. Many of the owner's sons have always worked at home and gradually acquired ownership of the farm through inheritance, through purchase, or by a combination of both methods.

TABLE II. NATIVITY BY STATES OF 108 FARMERS OF KNOWN AMERICAN NATIVITY, AND BY COUNTIES OF 89 FARMERS OF KNOWN ILLINOIS NATIVITY, HENSLEY TOWNSHIP, 1926

Name of State	Number	Name of County	Number
		(Illinois)	
Illinois	89	Champaign	75
Indiana	8	Piatt	4
Kentucky	4	Clay	2
Ohio	2	Vermilion	1
Kansas	2	Clark	1
Tennessee	1	Douglas	1
Missouri	1	Western Illinois	1
Nebraska	1	Southern Illinois	4
Total	108	Total	89

Foreign Countries, 1.
Birthplace not given, 11.

4. *Influence of nativity.* Sons of farm owners usually have better opportunities to become owners themselves than do sons of other men, on account of the above possibilities and also because of the substantial help that they may receive in purchasing their farms. The fact that farm owners are well known in their own neighborhood makes it easier for a young man to obtain credit if he is worthy and belongs to a family of good reputation.

Nearly 62% of the farmers in this area were born in Champaign County; 12% of the operators were born in other counties in Illinois; while 16% were born in some other part of the United States. The distribution of operators according to nativity is shown in Table II. Although it can hardly be said that there is still a well defined movement of farmers from certain regions to this section of Illinois, it is true that in general the migration has come from Indiana and portions of states adjacent to Indiana. In other words, these operators came as a part of a westward movement.

On the average, persons who were born in the township of their present residence were higher up the agricul-

tural ladder than persons who were not. In a group of 100 operators, over 90% of the owner-operators and 63% of all operators were born in Champaign County.

Relationship of Owners, Tenants and Farmer Owners

Nearly two-thirds of the owner-operators were sons or sons-in-law of previous owners. Less than one-fourth of the tenants were sons or sons-in-law of their landlords, while nearly one-third of the farms classed as tenant farms were owned by fathers, mothers, or other near relatives of the tenant or his wife. This condition represents the result of the efforts of owners who were either unable or disinclined to work the land themselves to shift the burden to some other member of the family. Many of these farms have been divided for purposes of inheritance until the individual holdings are not economical units. Many of them are held by women and girls who are chiefly interested in receiving an income from them. With the relatively large investment which the average farm now represents, it is a slow process at best for the young man who decides to operate the home farm to acquire complete ownership gradually by purchasing the shares from his brothers and sisters.

Some of the retired owners either have no sons or have sons who are in the city; therefore they must depend on other men to operate their farms. Reports emanating from neighboring states indicate that in such situations much land lies idle for lack of operators. In Hensley Township, on the contrary, every acre is utilized. Wherever operators work two or more farms, even the extra dwellings are occupied either by married laborers or by retired owners. Rapid retirement in the more prosperous regions has long been noted and is made possible by increasing tenancy. This results in a decreasing farm population, largely because the persons left on the farms are young and their families are yet small.

There are very few of the old farmers in this area who go on to small farms when they give up the management of their places. The reason for this may be that, having been grain farmers, they do not care about livestock farming, which is more essential on small acreages.

TABLE III. REASONS GIVEN FOR 147 SHIFTS BY FARMERS IN TENURE OF FARMS, HENSLEY TOWNSHIP, 1926

Retiring, or quitting the farm	57
Farm was too small	28
Operator became an owner	25
Former operator died	14
Moving to a better farm	7
Farm was sold	9
Farm was too large	3
Relative of owner desired the farm	4

The Movement and Migration of Farmers

This community shows the movement typical in America from country to city. Some people view with alarm this general trend away from the farm. The extent of this movement, however, has been one of the best indexes of the advance of civilization. The number of farm workers required to produce a given quantity of grain today is almost one-half smaller than was necessary 50 years ago. So much have methods improved that an ever lessening proportion of the rural population is required for agricultural production. However, when a young man leaves the farm he takes not only himself to the city but the coming generation also, and the greatest effect of his leaving is felt a

generation later, when land ownership will have passed to an entirely new set of families. This probably explains the entire absence of local boys as hired help in the area.

In this study an attempt was made to trace the movement of *bona fide* farm operators and to determine what percentage have discontinued actual farming during a period of 18 years. On the average, farms in Hensley Township during the last 18 years changed operators (both owners and tenants) only once in every eight years. The reasons given for moving in 147 instances are shown in Table III.

It is possible to have four persons interested in, or responsible for, the shifting of a tenant, namely, the old landlord, the new landlord, the operator replaced by the move, and the new operator involved. It is reasonable to think that any one or all of these parties have some reason to offer for the change. Outside of a few farms which are noted for chronic turnover of occupants, however, the writer found very little forced changing of operators. It may be said that the bulk of shifts is the result of change in ownership with the consequent placing of the owner's relatives in charge, and the desire of operators to fit the farm to their resources and ability.

A potent factor affecting shifting of farm population is the type of dwelling in which the farmer and his family live. As one might expect in an area with so little shifting, the houses in Hensley Township are generally large and well built. Although the owners usually have the better equipped places, most of the tenants have very comfortable homes. On the few farms where occupants changed rather frequently, the inadequacy of the dwelling was alone sufficient reason for the changes.

TABLE IV. RESIDENCES IN 1926 OF 101 PERSONS WHO WERE FARM OPERATORS IN 1908, HENSLEY TOWNSHIP

Present farm	27
Champaign County, but not present farm	11
Other counties in Illinois	4
City of Champaign	24
Other States in United States	15
Not known	5
(Deceased)	15

The residences in 1926 of 101 persons who operated farms in Hensley Township in 1908 are given in Table IV.

Very few farmers, once they are located as tenants or owners, make radical changes in their location, even though they move to other farms, retire, or go into other occupations. Of 101 farmers in 1908, 27% were still on the same farms in 1926, and 37% were still in the same county. Only 4% had moved outside the county and 15% outside the state. The tenants are more likely to move to more distant points for the reason that they are not so firmly rooted and because they are younger, and they are, likewise, more likely to enter occupations other than farming.

The occupations of farmers who moved from farms in the eighteen years from 1908 to 1926 are given in Table V. On 27 farms, or practically one-fourth of the total number, there was no change of operators during this period. About three out of every four of this group of men were owner-operators, while one-fourth were tenants. Only 33 farmers left farming to go into non-agricultural occupations during the 18-year period. On the average, one farm operator in 66 left farming for some other occupation each year. It is interesting to examine the kinds of occupations into which farmers go after leaving the farm. Men who

TABLE V. OCCUPATIONS OF 33 FARMERS WHO MOVED FROM FARMS IN THE 18 YEARS FROM 1908 TO 1926, HENSLEY TOWNSHIP, 1926

Occupation	Number	Occupation	Number
Real estate brokerage	1	Restaurant	1
Concrete block factory	1	Plasterer	1
General store	4	Tinshop	1
Post Office clerk	1	Steel mills	1
City official	2	Automobile shops	1
Printer	1	Lumberyard laborer	1
Grain elevator laborer	2	Milk peddler	1
Coal dealer	1	Teaming	2
Oil dealer	1	Bankrupt while farming	2
Salesman	1	Occupation not given	7

Farms on which there has been no change in operators for a period of 18 years.....27 (or 22%)

have stayed on the farm long enough to become operators are at a disadvantage when they leave the farm. They are likely to be too old to learn a trade or to enter another business. There are few professional men among them. They are usually engaged in unskilled labor, or if they have capital they may start a grocery store or some other mercantile business in a nearby village.

Non-agricultural Occupations of the New Farmers

Although more people are brought up on farms than remain there, there is a counter movement of persons from other occupations to farming. This movement is not so great as the movement away from farms and usually increases or decreases inversely to that movement. Previous occupations of farmers who were in non-agricultural work for a time are shown in Table VI.

Most persons who changed from other occupations to farming made the change before they became very deeply involved in any business. Some of the farmers reported as coming from other occupations were men who had left the farm during the depression and returned to take over their father's farm because of his disability or death. A few men are apparently operating farms as a hobby and employ married men on their farms while they manage the business and live in town.

It is important to determine why owners of farms, when they cease to be active operators, retain the ownership of their land and lease it to tenants rather than sell it. In the first place, it is not always possible to sell land immediately on favorable terms. The land market may be sluggish; this is especially true at the present time. One of the active owners who manages four farms in this section with the aid of married laborers made the statement that he desired to sell all but one farm. He had made no profit during the last six years, but he considered farm land worth $250 an acre. In view of his experience, it is no wonder that young men are not anxious to assume ownership at the present valuation of farm land.

The practical alternative for them is tenancy, which, as H. C. Taylor says, is an institution that provides for getting land into the hands of those who are in a position to cultivate it but are unable to own it. With the rising land values and the increasing spread between the annual earning power of land

TABLE VI. PREVIOUS OCCUPATIONS OF 24 FARMERS WHO WERE IN NON-AGRICULTURAL WORK FOR A TIME, HENSLEY TOWNSHIP, 1926

Previous Occupation	Number
General store	4
Factory or shops	3
Carpenter	3
Grain elevator	2
Teaching	2
Implement business	1
Railroad work	1
Street car conductor	1
Butcher	1
Unspecified	6
	24

and its sale price, the demand for farms on the part of buyers has been declining and the demand on the part of tenants increasing, so that retiring farmers have found it more profitable to lease their farms than to sell them.

It is obvious that here and elsewhere in this study, tenancy, much as it has been feared by some leaders, appears to be able to perform several functions in modern farm economy: (1) It makes possible the "retreat" from the farm; (2) it is a "rung" on the "agricultural ladder" to ownership; (3) it may serve as a virtual partnership, the owner supplying the capital while the tenant furnishes the labor; (4) it makes it possible for men with capital to serve a stewardship over the land.

Tenancy for the young farmer, for the man with limited capital, or as a means of passing the land from father to son, may foster a healthy state of agriculture. There is little to justify one in looking with alarm upon our tenancy problems. Intelligent observation, supervision, and education should solve the difficulties and lead to a continued prosperous and permanent agriculture.

MUNICIPAL OWNERSHIP IN THE ELECTRIC LIGHT AND POWER INDUSTRY OF MASSACHUSETTS

By HERBERT B. DORAU

A STUDY of the changing character and extent of municipal ownership in the electric light and power industry of Massachusetts affords many interesting opportunities for contrast and comparison with what has been shown to be the trend of development in Wisconsin.[1] In this analysis an effort will be made to parallel the method and content of the Wisconsin study so that the similarities and differences between these two states may be more easily noted.

Massachusetts is an interesting contrast to Wisconsin in a number of ways, and for purposes of comparing trends in municipal ownership it is a valuable field for study. Not only are the records of the Massachusetts Public Utility Commission or Department complete and in excellent form but, as will be seen later, the experience with municipal ownership of electric utilities in Massachusetts offers a number of striking differences from municipal ownership in Wisconsin.[2]

Life History of Municipal Plants in Massachusetts

The annual reports of the Commission or Department of Public Utilities of Massachusetts show that at one time or another there were 45 municipally owned electric establishments in Massachusetts. The history of electric service in each of these 45 communities is set forth on Chart I. This chart may be viewed either as a record or life history of each instance or as a composite record of municipal ownership in Massachusetts.

Viewing it as a history of each establishment, the "life bar" for each community begins as of the date at which electric service began in that community. Using the same devices as in the earlier study of municipal ownership in Wisconsin, the years in which the municipal establishment was self-sufficient are indicated by the black portion of the bar. When the municipal establishment started to purchase part of its output, the double cross-hatch is used to indicate this transition; and when all of its output was purchased, this stage of evolution is indicated by a single cross-hatch. The period when electric service was rendered by private companies, which was sometimes before and sometimes after the years in which public ownership existed, is indicated by an

[1] A detailed study of the rise and decline of municipal ownership in the electric light and power industry of Wisconsin was published in the May, 1927, issue of the *Journal*.

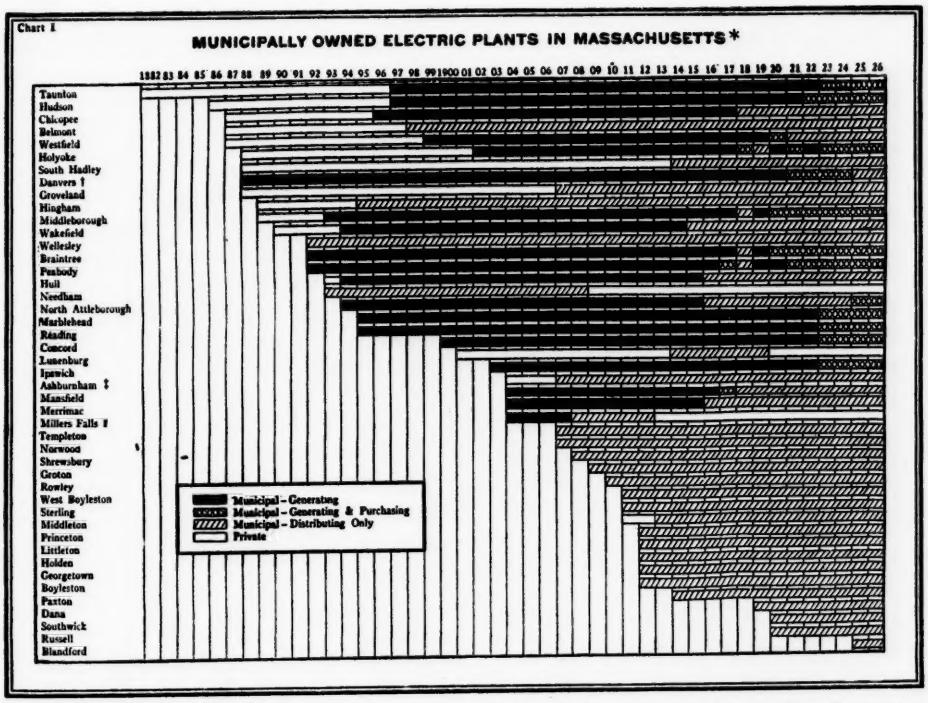
[2] Municipal ownership in the electric light and power industry of Massachusetts was intensively studied by E. E. Lincoln, in 1918. See *The Results of Municipal Electric Lighting in Massachusetts*, Houghton, Mifflin Company. This has proved suggestive and very useful as a check on our own work. A number of differences in interpretation and treatment of basic facts developed even though the primary sources were in each instance the reports of the Massachusetts Board of Gas and Electric Light Commissioners. Attention has been called to such differences by footnotes to Chart I and reconciliation attempted.

open white bar. These various stages in the evolution of municipally owned establishments, first noted in connection with the analysis of Wisconsin, are shown by Chart I to be representative of Massachusetts as well.

When Chart I is viewed as a composite picture of the changing character and extent of municipal ownership in Massachusetts, the disappearance of the self-sufficing generating plant is first noted. This began seriously in 1914, and by 1922 no municipally owned plant was reported as generating its entire output. In some instances the self-sufficient stage is followed by the purchase of part of the output, and in others it is succeeded directly by complete dependence upon other plants for the total output. The transition from generating plants has been much more rapid in Massachusetts than in Wisconsin where 14 plants continued through 1926 to generate their entire output.

The Establishment of Municipal Electric Plants

Since 1888 municipal establishments have been a factor in the organized,



* See footnote to Table III.

† The commission in its *Report* of January, 1892, p. 27, Acts of 1891, stated that since 1888 Danvers "has maintained and operated an arc light plant for the purpose of lighting the streets, but has done no commercial lighting." In the *Report* of 1890, p. 89, we find: "In the fall of 1888 the town erected . . . . a building and an electric and steam plant for the purpose of lighting its streets." Mr. Lincoln reported the date of origin as 1889; we chose to consider 1888 as the date of origin of the municipal plant.

‡ The commission reports stated that on November 1, 1907, the town of Ashburnham acquired the plant of the Greene Electric Light, Power, and Manufacturing Company. Mr. Lincoln reported the plant as municipalized in 1908; we chose to use 1907.

‖ The commission *Report* for the year ended June 30, 1910, p. 180, stated that the municipal plant "began in 1904." Note is also made elsewhere that the special act under which the plant was established was passed in 1903. Mr. Lincoln reported the plant as municipal purchasing, 1903 to 1912; we find it reported as municipal generating, 1904 to 1909.

central supply of electricity in Massachusetts. The total number of municipal electric establishments and the number added each year are set forth in Table I. One plant was established each year from 1888 to 1892, at which time the most rapid development of municipally owned stations began. From 1892 until 1897, 14 municipal plants were added. The next period of rapid advance was from 1911 to 1914, when 11 plants were started as public undertakings.

TABLE I. THE NUMBER OF MUNICIPAL ELECTRIC LIGHT AND POWER ESTABLISHMENTS ORIGINATING AND THE NUMBER OF ESTABLISHMENTS CHANGING, FROM MUNICIPAL TO PRIVATE OWNERSHIP IN MASSACHUSETTS; BY YEARS; 1888-1926*

Year	Total Number of Municipal Establishments	Number of Municipal Establishments Originating Each Year†	Number of Establishments Changing from Municipal to Private Ownership Each Year
1888	1	1	.....
1889	1	.....	.....
1890	1	.....	.....
1891	1	.....	.....
1892	4	3	.....
1893	6	2	.....
1894	9	3	.....
1895	12	3	.....
1896	13	1	.....
1897	15	2	.....
1898	16	1	.....
1899	17	1	.....
1900	18	1	.....
1901	18	.....	.....
1902	19	1	.....
1903	20	1	.....
1904	23	3	.....
1905	23	.....	.....
1906	23	.....	.....
1907	27	4	.....
1908	28	1	.....
1909	28	1	1
1910	29	1	.....
1911	31	2	.....
1912	36	5	.....
1913	36	1	1
1914	39	3	.....
1915	39	.....	.....
1916	39	.....	.....
1917	39	.....	.....
1918	39	.....	.....
1919	40	1	.....
1920	41	2	1
1921	41	.....	.....
1922	41	.....	.....
1923	41	.....	.....
1924	41	.....	.....
1925	42	1	.....
1926	42	.....	.....

* Compiled from the *Annual Reports* of the Commission or the Department of Public Utilities of Massachusetts.

† Includes all establishments changing from private to municipal ownership each year as well as those originating as municipal establishments.

In comparing the development of municipal ownership in Massachusetts and in Wisconsin, it will be found that in many respects the movements in Massachusetts anticipate those in Wisconsin, but the trend is almost always slower and more gradual. Whereas in Wisconsin only 15 out of the total of 115 municipal establishments originated by 1900, 18 out of the total of 45 in Massachusetts originated by 1900. From 1900 to 1910 Massachusetts added only 12 (gross) while Wisconsin added 59. Since 1910, 14 more municipal establishments were started in Massachusetts, while in Wisconsin 56 additional plants were established. Since 1918 only 6 municipal enterprises began in Wisconsin and none since 1923, while 4 have been added in Massachusetts since 1918, one of these in 1925.

In this connection the first important contrast between the development of municipal ownership in Wisconsin and Massachusetts is to be noted. In Wisconsin the maximum number (107) was reached in 1919, from which a decrease to 89 took place by 1926; in Massachusetts, however, the number has continued to increase even after 1914, reaching a high point in 1926 with 42 municipally owned establishments.

Moreover, it is interesting to observe in the case of Wisconsin that in 95 of the total of 115 instances of municipal ownership, the establishments originated under public auspices. In

Massachusetts only 30 of the 45 establishments, a very much smaller proportion, began under municipal guidance. The 15 Massachusetts municipal establishments which began under private auspices were among the earliest plants, all being established before 1894. Wisconsin, on the other hand, showed a rather regular distribution of these cases, with a few as late as 1910.

When the 30 Massachusetts communities which organized their own plants are scrutinized more closely (Table II), it is found that only 11 of these plants originated as self-sufficient generating stations. The other 19 establishments purchased their entire demand from the beginning. As in the case of Wisconsin, this class of municipal establishments includes principally those of

TABLE II. ANALYSIS OF CHANGING CHARACTER OF MUNICIPAL OWNERSHIP OF ELECTRIC LIGHT AND POWER ESTABLISHMENTS IN MASSACHUSETTS, 1882-1926

Total Number of Plants in Massachusetts, 1882–1926	45						
I. Number Originating as Private Establishments		15					
A. Number Changing from Private to Municipal Establishments Generating All of Output			8				
1. Number continuing to generate all of output				0			
2. Number changing from generating all of output				8			
a) to generating none of output					4		
(1) Number continuing to generate none of output						3	
(2) Number changing from generating none of output to generating all of output to generating part of output						1	
b) to generating part of output					4		
(1) Number continuing to generate part of output						2	
(2) Number changing from generating part of output						2	
(*a*) to generating none of output							1
(*b*) to generating none to generating all to generating part to generating all to generating part							1
B. Number Changing from Private to Municipal Establishments Generating None of Output			7				
1. Number continuing to generate none of output				6			
2. Number changing from generating none of output to private				1			
II. Number Originating as Municipal Establishments		30					
A. Number Originating as Municipal Establishments Generating All of Output			11				
1. Number continuing to generate all of output				0			
2. Number changing from generating all of output				11			
a) to private					0		
b) to generating none of output					4		
(1) Number continuing to generate none of output						1	
(2) Number changing from none of output						3	
(*a*) to private establishments							1
(*b*) to generating all to generating part							1
(*c*) to generating part							1
c) to generating part of output					7		
(1) Number continuing to generate part						4	
(2) Number changing from generating part						3	
(*a*) to generating none							2
(*b*) to generating none to generating all to generating part							1
B. Number Originating as Municipal Establishments Generating None of Output			19				
1. Number continuing to generate none of output				18			
2. Number changing from generating none of output to private				1			

recent origin. Thus, 17 of the 19 plants originated since 1906. Moreover, 18 of these 19 continued to purchase their entire output through 1926, while only 1 changed from public to private ownership (Table II).

Municipal Establishments Which Began Under Private Auspices

In 15 of the 45 cases of municipal ownership in Massachusetts the establishment began under private auspices and then was taken over by the public authorities. In Wisconsin none of this class of establishments have changed back to private ownership. In Massachusetts one such establishment which had been operated by private owners for 13 years and conducted as a publicly owned establishment purchasing all of its demand for 6 years, in 1920 reverted to private ownership. In 8 of the 15 establishments making the change from private to public, the transition was from private to public plant generating the entire output. All these changes occurred early, the last one taking place in 1902. As Chart I and Table II show, none of these 8 establishments continued to generate their entire output. Four later changed directly to dependent distributing establishments generating no current, while 4 went through the second stage of generating part of their output, though only 2 persisted through 1926 in generating part and purchasing part (Table II).

Municipal Establishments Which Started Under Public Auspices

Of the 30 municipal electric plants in Massachusetts which originated as public undertakings, only 11 began as self-sufficient generating plants, all of these before 1905. Attention has already been called to the fact that none of these remained self-sufficient, the last

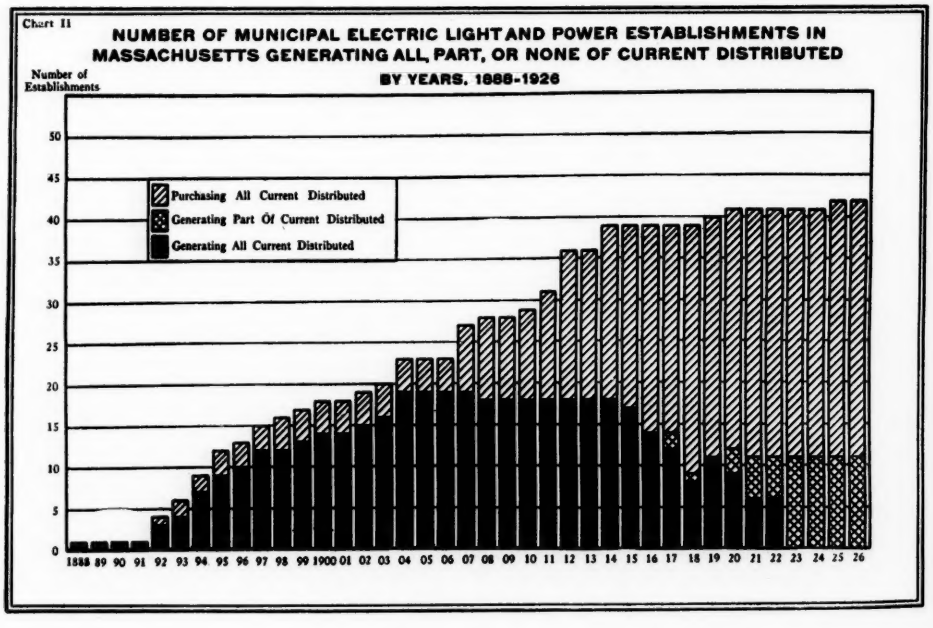


Chart II
NUMBER OF MUNICIPAL ELECTRIC LIGHT AND POWER ESTABLISHMENTS IN MASSACHUSETTS GENERATING ALL, PART, OR NONE OF CURRENT DISTRIBUTED BY YEARS, 1888-1926
Number of Establishments
Purchasing All Current Distributed
Generating Part Of Current Distributed
Generating All Current Distributed
0 5 10 15 20 25 30 35 40 45 50
1888 89 90 91 92 93 94 95 96 97 98 99 1900 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

ones changing in 1922 to generating part or none of their output. Four of these establishments were transformed to distributing stations generating no current, while 7 began to purchase part of their output, but only 4 continued to generate part through 1926. More detailed analysis of these changes is best presented through Table II and Chart II, in which each step of each type is recorded in detail.

The Year-by-Year Changes in the Character of Municipal Ownership in Massachusetts

In Table III the changes in classification of municipally owned electric establishments are recorded year by year. Here the transition through the various stages of evolution previously discussed can be followed annually. Table IV summarizes the net results of these year-by-year changes, and Chart II portrays these results graphically. Reference to Chart II will also show the striking transformation of the municipally owned portion of the electric industry in Massachusetts.

In Massachusetts the self-sufficient plant was dominant until the years 1906-1907. In fact, the maximum number of self-sufficient generating stations was reached in 1907 (19 establishments), but remained fairly constant until 1914-15, when a precipitous decline set in. The drop ended in 1923 with no municipal establishments any longer generating their entire output. It may be noted here that the same movement took place in Wisconsin, but at later dates. There the peak of municipally owned generating establishments was reached in 1913-1915, followed by a sharp drop from 1918 to 1923. However, the 14 remaining self-sufficient plants still persisted in 1926.

The cooperative arrangement under which part of the output is generated and part is purchased (almost always from private plants) began to develop in Wisconsin at an early date. There were a few such cases in that state from 1909 to 1914 and after that an increasing number which reached a maximum in 1921 and 1924, when there were 21 such establishments. In Massachusetts, on the other hand, the first cases of this sort are recorded in 1917 and they only became important by 1923, when there were 11 such establishments out of a total of 42. It may be further noted that, in the aggregate, 39 of the 115 establishments in Wisconsin went through this stage of part generating and part purchasing, while in Massachusetts 14 out of 45, a slightly smaller proportion, evolved through this phase and 11 were still (1923) in it.

The most rapid change in both Wisconsin and Massachusetts occurred in connection with purely purchasing establishments. This step in the economic evolution of public enterprises started and developed much earlier in Massachusetts than in Wisconsin. The plants in this class had been of some importance since 1900 in Massachusetts but assumed no proportions of consequence in Wisconsin until 1913-1914. In Massachusetts, by 1926, 31 of the 42 establishments were engaged merely in distributing electricity and the other 11 generated only a part of their output. But in Wisconsin 63 out of 89 were merely distributing systems in 1926 (Table IV).

From Public to Private Ownership

The most striking contrast between the two states appears when a compari-

TABLE III. ANALYSIS OF EXTENT AND CHANGING CHARACTER OF MUNICIPAL OWNERSHIP OF ELECTRIC LIGHT AND POWER ESTABLISHMENTS IN MASSACHUSETTS, BY YEARS, 1882-1926*

	Total Number of Municipal Establishments in Existence in Each Year	Number of Municipal Establishments Originating As:					Number of Establishments Changing From		Actual Net Increase in Number of Municipal Establishments	Number of Establishments (Municipal) Changing From		
		Private Establishments	Municipal Establishments				Ownership			Generating All to Generating Part	Generating All to Generating None	Generating Part to Generating None
			Total Number	Generating All	Generating Part	Generating None	Private to Public	Public to Private				
1882	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1883	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1884	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1885	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1886	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1887	.....	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1888	1	3	1	1	.....	.....	.....	.....	1	.....	.....	.....
1889	1	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1890	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1891	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1892	4	.....	3	2	.....	1	.....	.....	3	.....	.....	.....
1893	6	1	1	.....	.....	1	1	.....	2	.....	.....	.....
1894	9	.....	1	1	.....	.....	2	.....	3	.....	.....	.....
1895	12	.....	2	2	.....	.....	1	.....	3	.....	.....	.....
1896	13	.....	.....	.....	.....	.....	1	.....	1	.....	.....	.....
1897	15	.....	.....	.....	.....	.....	2	.....	2	.....	.....	.....
1898	16	.....	.....	.....	.....	.....	1	.....	1	.....	.....	.....
1899	17	.....	.....	.....	.....	.....	1	.....	1	.....	.....	.....
1900	18	.....	1	1	.....	.....	.....	.....	1	.....	.....	.....
1901	18	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1902	19	.....	.....	.....	.....	.....	1	.....	1	.....	.....	.....
1903	20	1	1	1	.....	.....	.....	.....	1	.....	.....	.....
1904	23	.....	3	3	.....	.....	.....	.....	3	.....	.....	.....
1905	23	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1906	23	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1907	27	.....	2	.....	.....	2	2	.....	4	.....	.....	.....
1908	28	.....	1	.....	.....	1	.....	.....	1	.....	1	.....
1909	28	.....	1	.....	.....	1	.....	1	.....	.....	.....	.....
1910	29	.....	1	.....	.....	1	.....	.....	1	.....	.....	.....
1911	31	1	2	.....	.....	2	.....	.....	2	.....	.....	.....
1912	36	.....	5	.....	.....	5	.....	.....	5	.....	.....	.....
1913	36	.....	.....	.....	.....	.....	1	1	.....	.....	.....	.....
1914	39	.....	1	.....	.....	1	2	.....	3	.....	.....	.....
1915	39	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
1916	39	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	.....
1917	39	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....
1918	39	.....	.....	.....	.....	.....	.....	.....	.....	1	3	2
1919	40	.....	1	.....	.....	1	.....	.....	1	.....	.....	1†
1920	41	.....	2	.....	.....	2	.....	1	1	3	.....	.....
1921	41	.....	.....	.....	.....	.....	.....	.....	.....	3	.....	1‡
1922	41	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	
1923	41	.....	.....	.....	.....	.....	.....	.....	.....	7	.....	.....
1924	41	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1925	42	.....	1	.....	.....	1	.....	.....	1	.....	.....	1‖
1926	42	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

† Three changed from generating none to generating all.

‡ One changed from generating part to generating all.

‖ One changed from generating none to generating part.

* The municipal establishments in Braintree, Danvers, Peabody, and Wellesley originated as establishments to render street lighting service only. Braintree rendered service for street lighting only from 1892 to 1894, and in 1894 offered service to pri-

(Continued on following page.)

son is made of the number of municipal establishments which became privately owned. In Wisconsin 26 of the total of 115 municipal plants had been sold to private companies, but in Massachusetts only 3 of the total of 45 had passed into private hands by 1926. One of these changed from a purely distributing establishment to private ownership in 1908-1909. A second began as a private establishment in 1901, changed to a publicly owned establishment generating all of its output in 1914, and back again to private ownership in 1920. In the third case a public plant began as a self-sufficient generating station in 1904, changed to a purely distributing establishment in 1908, and was sold to private owners in 1913.

In Wisconsin the changes from public to private ownership have been principally in the smaller, even smallest, communities. Thus the average population in 1920 of those 26 communities in Wisconsin which sold their plants to private owners was 693; 23 of them had less than 1,000 population, the largest had a population of 62,675, 14 had less than 600 population, and 17 less than 700. The facts for Wisconsin support what one might expect to be true *a priori,* that municipal ownership is more unstable in the smaller communities and that the plants in these communities are more likely to change directly from municipal generation of total output to complete private ownership. There is already evidence, based on other studies not yet complete, that the larger communities more commonly evolve through the stages of part purchasing and then purchasing all before transferring, if they sell at all, to private ownership. With only 3 such cases in Massachusetts, no exact comparisons can be made except to note that the largest community had a population in

TABLE IV. NUMBER OF MUNICIPAL ELECTRIC LIGHT AND POWER ESTABLISHMENTS IN MASSACHUSETTS GENERATING ALL, PART, OR NONE OF CURRENT DISTRIBUTED, BY YEARS, 1888-1926*

Year	Total Number of Estab-ments	Number Gener-ating All	Number Gener-ating Part	Number Gener-ating None
1888	1	1	.....	.....
1889	1	1	.....	.....
1890	1	1	.....	.....
1891	1	1	.....	.....
1892	4	3	.....	1
1893	6	4	.....	2
1894	9	7	.....	2
1895	12	9	.....	3
1896	13	10	.....	3
1897	15	12	.....	3
1898	16	12	.....	4
1899	17	13	.....	4
1900	18	14	.....	4
1901	18	14	.....	4
1902	19	15	.....	4
1903	20	16	.....	4
1904	23	19	.....	4
1905	23	19	.....	4
1906	23	19	.....	4
1907	27	19	.....	8
1908	28	18	.....	10
1909	28	18	.....	10
1910	29	18	.....	11
1911	31	18	.....	13
1912	36	18	.....	18
1913	36	18	.....	18
1914	39	18	.....	21
1915	39	17	.....	22
1916	39	14	.....	25
1917	39	12	2	25
1918	39	8	1	30
1919	40	11	.....	29
1920	41	9	3	29
1921	41	6	5	30
1922	41	6	5	30
1923	41	.....	11	30
1924	41	.....	11	30
1925	42	.....	11	31
1926	42	.....	11	31

* Compiled from the *Annual Reports* of the Commission or the Department of Public Utilities of Massachusetts.

vate consumers. Danvers supplied municipal lighting service only for eight years, first serving private consumers in 1896. The Peabody plant did municipal lighting only for one year and in 1893 first sold current for commercial lighting. In none of these three towns did a private company render commercial service. The Wellesley municipal establishment purchased current for street lighting only from 1892-1906. The report of the Massachusetts Commission for the year ended June 30, 1904, gives the first record of service rendered to private customers in Wellesley. From 1904 to 1906 the Edison Illuminating Company of Boston rendered commercial lighting service in that town. In 1906 the municipal plant took over the commercial lighting service and since that date has furnished current for commercial lighting as well as for street lighting.

TABLE V. PERCENTAGE OF ELECTRIC REVENUE RECEIVED BY MUNICIPALLY OWNED ESTABLISHMENTS TO THE TOTAL FOR ALL ESTABLISHMENTS

Year	Massachusetts	Wisconsin
1902	4.24%	9.48%
1907	6.91	16.62
1912	7.85	9.95
1917	6.85	10.08
1922	6.66	9.19

excess of 7,000, the second over 2,000, and the smallest 1,634.

A Comparison of the Size of Community Having Municipally Owned Electric Establishments in Massachusetts and Wisconsin

The average population in 1920 of communities having municipal ownership in Wisconsin was 1,838, while in Massachusetts it was 7,795. With greater urbanization and concentration in Massachusetts this is to be expected, but for the study of municipal ownership this difference in size is important and helps to explain certain disparities, such as the greater resistance of municipal ownership in Massachusetts, the earlier development of the purely distributing establishment, and the earlier disappearance of the municipal generating station. Only 7 of the 45 places in Massachusetts were under 1,000 population in 1920 while, as noted before, 60 of the 115 in Wisconsin were under 1,000 population.

Other Comparisons

The relative significance of municipal as compared with private ownership can be further shown by comparing the percentage of total revenues, kilowatt capacity, kilowatt-hours generated, and total output of municipally owned establishments to the total for the state.

The percentage of electric revenue received by municipally owned plants to the total revenue of public and private establishments has always been higher in Wisconsin than in Massachusetts. But in the latter state the percentage was materially higher in 1922 than in 1902 and about the same in 1922 as in 1907. In Wisconsin, on the other hand, the proportion was about the same in 1922 as in 1902 but was actually lower in 1922 than at any other quinquennial census period. A comparative summary in Table V shows the changes for the two states by five-year periods.[3]

When a comparison is made on the basis of the percentage of kilowatt-hour capacity, the results are materially different. In Massachusetts the percentage of municipal kilowatt capacity to total kilowatt capacity has declined since 1912, when it was 7.72%, to 1922 when it reached 3.14%. In Wisconsin there has been an almost equally great decline beginning in 1907 (15.35%). This percentage fell to 4.13 in 1922. The detailed comparison on this basis is given in Table VI.

The kilowatt-hours generated can be compared only for the years 1917 and 1922. In Massachusetts 4.62% of the total came from municipal plants in 1917 and 4.26% in 1922 as compared with the figures for Wisconsin of 3.39% for 1917 and 3.75% for 1922. No advantageous comparisons can be made between the percentage of kilowatt-hours generated and the percent-

TABLE VI. PERCENTAGE OF KILOWATT CAPACITY OF MUNICIPAL PLANTS TO CAPACITY OF ALL PLANTS

Year	Massachusetts	Wisconsin
1907	7.23%	15.35%
1912	7.72	9.77
1917	5.65	6.23
1922	3.04	4.13

[3] Statistics of this character are not now available for any year later than 1922.

TABLE VII. PERCENTAGE OF KILOWATT-HOURS OUTPUT OF MUNICIPAL ESTABLISHMENTS TO TOTAL OUTPUT OF ALL ESTABLISHMENTS

Year	Massachusetts	Wisconsin
1902	3.33%	8.21%
1907	5.94	9.44
1912	7.17	4.06
1917	4.78	3.53
1922	5.00	5.03

age capacity of municipal stations. One disturbing factor is the changing proportion of current purchased and generated by private stations and another is that municipal stations having generating equipment use this to capacity and buy only excess demand.

Finally we may compare the proportion of total output assignable to publicly owned establishments in Massachusetts and Wisconsin. This comparison sets forth very well one of the differences between the two states. Massachusetts reported 3.33% in 1902, 5.94% in 1907, 7.17% in 1912, and 5.00% in 1922. Wisconsin, however, had 8.21% in 1902 and 9.44% in 1907; the figure then declined to 3.53% in 1917 but increased to 5.03% in 1922, which is very nearly the same figure as for Massachusetts in 1922. Until 1917 the decline was more rapid in Wisconsin, but after the partial recovery in 1917-1922 the percentage remained at about the level for Massachusetts.

From this analysis of the trend of municipal ownership in Massachusetts against the background of the previous study of Wisconsin certain common tendencies as well as some differences are noticeable. Massachusetts, even more than Wisconsin, exhibits a movement away from generating self-sufficiency toward dependency and a status where a large part of the current distributed is purchased. In 1922, for example, municipal establishments of Massachusetts generated only 63,542,572 kilowatt-hours of a total output of 103,841,444 kilowatt-hours by such stations. This movement toward becoming merely distributing establishments started earlier in Massachusetts than in Wisconsin and has proceeded further. Yet the number of municipal plants in Massachusetts has not decreased. This is in marked contrast to Wisconsin and several other states. It seems reasonable to assume that the smaller area and shorter distances between communities in such a densely populated state as Massachusetts had something to do with the early development of municipal establishments solely as distributing stations. Furthermore, evidence probably will be found to substantiate the suggestion previously made that there is more resistance to a change to private ownership in larger communities than in smaller ones and that this, in part at least, explains the second major difference between these two states. An additional explanation is the fact that the technical advances of the last five years have placed the small and relatively isolated plants at a much greater disadvantage than the larger establishments.

THE SIZE OF LANDHOLDINGS IN WISCONSIN[1]

By JONAS STURLAUGSON

WE HAVE had considerable discussion in the past both for and against the concentration of landownership in the United States. The large landholdings in England in particular have been pointed to as an indication of what is going to happen and what is actually happening in this country.[2] The increase in farm tenancy in certain regions is very often accepted as evidence of this fact. That is to say, concentration in landownership is held to be the chief cause of tenancy. Some have gone so far as to say that we are headed toward a land monopoly in the near future. One writer says:

> Along with the enclosure of the land there has gone an increase in tenancy as well as in the size of farm holdings. The free home owner is diminishing in comparison with the tenants, while the small farm is being overshadowed by the large estate. These movements are already well under way. They characterize the East as well as the West. The rapidity of the change is startling.[3]

He interprets these tendencies as meaning that we are rapidly approaching a most powerful land monopoly. The fact that farms of 1,000 acres and over in the United States increased from 28,578 in 1880 to 47,276 in 1900 is brought forward as an illustration of this trend. No mention was made, however, of the fact that the former figure represented 0.7% of the total number of farms and the latter 0.8%, indicating that the increase in the number of large farms was only proportionate to the increase in the total number of farms. It may be added that 55% of the farms of 1,000 acres and over were livestock farms and 20.8% hay and grain farms, and these were found for the most part in the West and Middle West. Economic conditions at that time (1900 and thereabouts) favored large-scale farming enterprises in the prairie states especially. The so-called "bonanza" farms, now almost extinct, were evidence of that fact. Cattle ranching, which accounts for a considerable portion of the large farms, usually requires a large area of relatively cheap land even for a business unit of moderate size. A 1,000-acre cattle ranch ordinarily is not considered a large one.

Enough has already been said to indicate that any sweeping generalization from census figures without careful analysis and supplementary study is an unsafe basis on which to build conclusions. The better procedure is to study typical areas and note what proportion of the land is held in large landholdings, what the nature of such large landholdings is, and what the tendency is with respect to the concentration of

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[1] This article is based on a study of the size of landholdings in Wisconsin made by the writer a year ago for the Institute for Research in Land Economics and Public Utilities. The original plan was to include the states of Minnesota and North Dakota in this study, but time and facilities limited the study to Wisconsin. The study was made at the suggestion and under the guidance of Professors R. T. Ely and B. H. Hibbard.

[2] The term "landholding" in this article refers to a unit of ownership and must thus be distinguished from the term "farm," which refers to a unit of operation.

[3] F. C. Howe, *Privilege and Democracy*, p. 71.

landownership. Are large landholdings prevalent? Are they increasing or not? Do they stand in the way of social and economic progress? These are some of the questions for which answers have been sought in the experience of certain areas in Wisconsin.

I. Large Farms in Wisconsin

The large farm is one type of large landholding, for usually, though not always, the farm is a unit of ownership as well as of operation. Part-owner farms and partnerships are exceptions; on the whole, large farms are owned by a single individual.[4]

The question of what constitutes a large farm arose early in this study. There are many ways of measuring the size of farms, but since we are here principally concerned with area, acreage was taken as the measuring stick. But what, in terms of area, constitutes a large farm? Here again, a more or less arbitrary figure must be adopted to suit the particular region as well as the purpose of the investigation. In this case we have considered as large farms those above 500 acres in size. This is over four times as large as the average farm in Wisconsin, which in 1920 had 117 acres.[5]

Wisconsin is not and never has been a region of large farms. The topography, the prevalence of timber throughout the state, and the lack of labor-saving machinery which made large farms advantageous, stood in the way of the development of large farms when land was relatively cheap and the state was a wheat growing region. The prevailing type of agriculture in Wisconsin, namely, dairying, is not well suited to large-scale operation; the "family size" farm is the rule in the dairy sections.

According to the census figures, the number of farms of 500 acres and over increased from 775 in 1880 to 1,136 in 1900. Since 1900 there has been a decrease—a rather marked decrease during the period from 1920 to 1925, as shown in Table II.

The data in Table II do not mean a great deal unless we take account of the geographic distribution of the large farms, historically considered. In other words, was the increase uniform throughout the state? If not, where was the increase in the number of large farms most marked? In the 20 southern counties in the state, which roughly

[4] Farms of which a part of the land is owned by the operator and a part rented constitute part-owner farms.

[5] From 1860 to 1910, the average size of farms in the state increased from 114 to 119 acres. Since 1910 there has been a decrease in the size, reaching the low figure of 113.1 acres in 1925.

TABLE I. TOTAL LAND AREA, AREA IN FARMS, AREA IN CROPS, NUMBER OF FARMS, AND PERCENTAGE OF TENANCY IN FIVE COUNTIES OF WISCONSIN, 1925*

UNIT	TOTAL ACREAGE	AREA IN FARMS		AREA IN CROPS			NUMBER OF FARMS			PERCENT OF TENANCY
		Acres	Percent of Total	Acres	Percent of Farm Area	Percent of Total Area	Total	500–999 Acres	1,000 Acres and Over	
Dane County.....	769,280	707,627	92.0	402,754	56.9	52.4	6,086	5	1	31.7
Rock County.....	458,240	416,497	90.9	266,295	63.9	58.1	3,737	3	1	33.2
Ashland County...	692,480	117,638	17.0	36,287	30.8	5.2	1,380	4	....	4.6
Rusk County.....	592,000	203,076	34.3	52,061	25.6	8.8	2,240	10	4	8.8
Sawyer County....	884,800	105,131	11.9	25,417	24.2	2.9	1,184	6	1	5.9
State.....	35,363,840	21,850,853	61.8	10,127,914	46.3	28.6	193,153	769	116	15.5

* Data compiled from the *United States Census of Agriculture, 1925.*

TABLE II. NUMBER OF FARMS OF 500 ACRES AND OVER IN WISCONSIN BY DECADES, 1880-1925*

YEAR	SIZE OF FARM		TOTAL
	500–999 Acres	1,000 Acres and Over	
1880	666	109	775
1890	814	109	923
1900	991	145	1,136
1910	966	141	1,107
1920	912	147	1,059
1925	769	116	875

* Data compiled from United States Census reports.

make up the oldest agricultural region of the state, there were 390 farms from 500 to 999 acres in size in 1880. This number decreased to 298 in 1920, a drop of approximately 25%. In the same counties in 1880 there were 28 farms above 1,000 acres, while in 1920 only 16 remained. In the 20 northern counties, which roughly constitute the more recently opened up region of the state, a very different situation obtains. Here the number of farms from 500 to 999 acres in size increased from 25 in 1880 to 208 in 1920. In this region not a single farm above 1,000 acres was listed in 1880, while in 1920, 64 such farms were listed, or nearly one-half of the total of such farms for the state. Thus there has been a very marked decrease in the number of large farms in the older agricultural regions of the state, a decrease, however, which up to 1900 was more than balanced by the increase in the number of such farms in the newer sections of the state.

It is well at this point to call attention to the fact that a considerable portion of the so-called large farms in the northern part of the state are not farms in any real sense. Many of these holdings consist of large tracts of wild or cut-over land on which some sort of a shack has been erected and probably a few acres cultivated. Very rarely indeed do we find large farms in the northern part of the state with any considerable portion of the total acreage improved.

In 1920 the assessors reported only 654 farms of 500 to 999 acres and 72 farms of 1,000 acres and over.[6] The former figure is only two-thirds as large and the latter only one-half as large as the corresponding census figure for the same year. A detailed comparison of the census and assessors' classification for three northern counties is presented in Table III. It will be noted that in both classes, the 500 to 999 and the 1,000 acre and over, the census figure is double that of the assessors. There is good reason to believe that the assessors are better acquainted with the locality than are the census enumerators. Furthermore, they are not being paid at so much per schedule as in the case of the census enumerators. Therefore the assessor is not so apt to report as farms tracts that are merely land holdings, while the census enumerator will report as farms any tract that can possibly be included under the somewhat technical census definition of a farm.[7] However, while we must recognize the upward bias of the census

[6] Bulletin No. 34, Wisconsin Department of Agriculture. The data are compiled from the assessors' crop reports to the state statistician.

[7] "A 'farm,' for census purposes, is all the land which is directly farmed by one person, either by his own labor alone or with the assistance of members of his household or hired employees. The land operated by a partnership is also a farm. A 'farm' may consist of a single tract of land, or of a number of separate tracts, and these several tracts may be held under different tenures, as where one tract is owned by the farmer and the other tract is rented by him. When a landowner has one or more tenants, renters, croppers, or managers, the land operated by each is considered a farm.

"In applying the foregoing definition of a 'farm' for census purposes, enumerators were instructed

figures in this matter and probably agree that the assessors' figures are more to be relied upon for the purposes of this inquiry, we nevertheless must depend very largely upon the census figures for ascertaining what the trend is because the assessors' crop report data are not available for past decades.

We have already pointed out that there has been a considerable decrease in the number of large farms in Wisconsin during the last few years (see Table II). This is true in particular of the northern part of the state. Table III shows that according to the 1920 census there were 28 farms of 500 to 999 acres and 10 farms of 1,000 acres and over in the three northern counties studied. The corresponding figures for 1925 were 20 farms of 500 to 999 acres and 5 farms 1,000 acres and over. These figures show that since 1920 many of the so-called large farms or ranches have been broken up. The Darlington Ranch, located in the towns of Washington and Willard, in Rusk County, is only one of many examples of this trend. Over 20 years ago, the Darlington brothers, livestock commission merchants from Chicago, purchased over 5,000 acres in Rusk County, Wisconsin. They planned to run this as a single unit and raise and fatten cattle and sheep. According to Mr. Savord, acting agent for the owners, as many as 600 head of cattle and 12,000 sheep were to be found on the ranch at one time. A great deal of fencing and other improvements were put up. About five years ago the owners decided to break up the ranch into small farms and dispose of the land to settlers. The principal reason given for this move was that the ranch did not prove to be a paying proposition.

Much the same idea was reflected in the answers received to mail questionnaires sent in 1925 to 225 operators of farms of 640 acres and over in Wisconsin, to county agents, and to a selected group of bankers. The following is a summary of the 56 answers received from operators of large farms. The average farm reported was 1,290 acres, of which 14% was in crops. This may be compared with the 1925 census figures, which show that 46% of all the land in farms was crop land in 1924. In other words, the average large farm

to report as a 'farm' any tract of 3 or more acres used for agricultural purposes or which required for its agricultural operations the continuous services of at least one person, and also any tract containing less than 3 acres which produced at least $250 worth of farm products."

TABLE III. COMPARISON OF UNITED STATES CENSUS AND ASSESSORS' CLASSIFICATION OF FARMS IN ASHLAND, RUSK, AND SAWYER COUNTIES, WISCONSIN, 1920*

SIZE OF FARM (Acres)	ASHLAND		RUSK		SAWYER		TOTAL	
	Census	Assessor	Census	Assessor	Census	Assessor	Census	Assessor
20–49	306	337	549	503	194	249	1,049	1,089
50–99	403	412	809	808	349	397	1,561	1,617
100–174	282	266	373	381	187	194	842	841
175–259	67	33	91	63	46	41	204	137
260–499	25	9	37	30	23	13	85	52
500–999	5	2	13	4	10	6	28	12
1,000 and Over	1	....	7	4	2	1	10	5
Total	1,089	1,059	1,879	1,793	811	901	3,779	3,755

* The assessors' figures were taken from Bulletin 34, Wisconsin State Department of Agriculture.

in the state is by no means as intensely cultivated as the smaller farms. About one-third of the farms were classified as mixed farms and one-fifth each as dairy and livestock farms. On the average, 2.8 paid laborers were employed. Of the 56 operators reporting, 34 said that they had great difficulty in obtaining and keeping suitable laborers. Probably the most significant fact revealed by the answers was that one-half of the operators stated that they believed that a smaller farm would be more profitable and better suited to present conditions.

Table IV summarizes the answers received from the county agents and bankers. There is a remarkable agreement in the answers from the two groups. Additional proof is here furnished to show that large farms are rare in Wisconsin, as most of those who said that there were several large landholdings in the county or locality stated that these consisted very largely of wild land. It may safely be said, therefore, that large farms are not the source of much concentration of landownership in Wisconsin and that the present tendency is distinctly in the direction of diminution in the number of large farms in the state.

TABLE IV. SUMMARY OF ANSWERS TO QUESTIONNAIRES SENT TO COUNTY AGENTS AND BANKERS ON THE SUBJECT OF LARGE FARMS AND OTHER LARGE LANDHOLDINGS IN WISCONSIN, 1925

QUESTION ASKED	COUNTY AGENTS		BANKERS	
	Yes	No	Yes	No
Is there any appreciable number of large farms or other large landholdings in your county?*	13	30	7	34
Is there any considerable amount of land being held out of agricultural use for speculative purposes in your county?*	3	39	4	35
In your opinion, are large farms more efficient from a business standpoint?	3	29	5	30
Are large landholdings the cause of much tenancy in your county?*	2	38	2	34
Do you consider the large landholdings that you know of detrimental from a social standpoint?	11	23	7	25

* The word "locality" was substituted for the word "county" in the questionnaires sent to the bankers.

II. Landholdings in Southern Wisconsin

Although there is very little concentration of landownership in Wisconsin insofar as large farms are concerned, large holdings of land used for agricultural purposes may occur. Where tenancy is prevalent or where manager-operated farms are numerous, there is an opportunity for one person to own several farms. In Wisconsin, manager-operated farms are relatively few in number. In 1925, according to the recent agricultural census, only 0.6% of the farms in Wisconsin were operated by managers—a negligible figure. There remains, then, the possibility of concentration in the ownership of tenant-operated farms. The data furnished by a careful study of landholdings in two representative counties in south central Wisconsin—the counties of Dane and Rock—throw light on this point.

Before giving attention to the present status of large landholdings in the above mentioned counties, it is well to note briefly the historical significance of large landholdings in this region. By a careful study of the record books of the original land entries in the Register of Deeds Office it was found that in each of the two counties nine entries of 1,000 acres or over were recorded. The largest entry was made by Lucius Lyons of Michigan; over 20,000 acres were entered in his name during the years 1836 and 1837. The next four largest entries were as follows: J. T. Watson, 8,320 acres, Rock County; J.

TABLE V. FIRST AND SECOND TRANSFERS OF LAND ORIGINALLY PURCHASED IN LARGE UNITS FROM THE GOVERNMENT, SHOWING MARGIN OF SELLING PRICE ABOVE PURCHASE PRICE AND NUMBER OF YEARS LAND WAS HELD BETWEEN TRANSFERS

Total Number of Acres in Holding	Acres in Sample	First Transfer			Second Transfer		
		Years Land Was Held	Sale Price per Acre	Margin Over Purchase Price per Acre	Years Land Was Held	Sale Price per Acre	Margin Over Purchase Price per Acre
20,247*	13,619	1	$2.68	$1.43	18	$8.68	$6.00
5,990†	3,068	4	2.27	1.02	7	7.51	5.24
3,780†	1,048	13	5.25	4.00	4	8.34	3.09
2,480†	2,040	1	1.25	None	10	5.47	4.22

* In Dane County.
† In Rock County.

M. Keep, 5,990 acres, Rock County; and C. C. Washburn, 5,340 acres, Dane County. The remaining 13 entries of 1,000 acres or over ranged from 1,120 to 4,000 acres in size. In all, approximately 51,000 acres in Dane County and 31,000 acres in Rock County were originally purchased in units of 1,000 acres or over. No record was made of the price paid the government for the land, but it is safe to assume the price to have been approximately $1.25 an acre, for practically all the land sold by the government during that period was sold for that price.

By following these large landholdings through the first few transfers it becomes evident that they were for the most part speculative in nature. Lyons disposed of over two-thirds of his land within one year from the date of purchase at a price of $2.68 an acre. Thus he practically doubled his money in one year. At the end of eleven years he had disposed of all his land in Dane County at prices ranging from $1.25 to $4.45 an acre. The average price received per acre was $2.60.

Practically all the land originally held in large holdings was rapidly disposed of and broken up into small holdings. Indications are that a considerable amount of money was made by land speculators who disposed of their land quickly at a moderate figure. On the other hand, those who held their land for a considerable length of time did not fare so well. Table V shows the price changes and the length of time the land was held in the case of the first and second transfers of representative samples of four of the holdings mentioned. We note that the margin of sale price over purchase price ranged from zero to $2.68 per acre per year in case of the first transfer and from $0.33 to $0.77 in case of the second transfer. In the latter the speculative gain probably proved very small after making due allowance for taxes and interest.

It is interesting also to note the trend with respect to large holdings from the time of original entry down to the present. In Table VI will be found a complete classification of landholdings in four representative towns in each of the two counties for four different periods. When measured in terms of percentage of total area, the 100- to 174-acre size-group, made up for the most part of 120- and 160-acre

holdings, leads throughout the entire period. The 40-acre class shows a gradual decrease from 11.2% at the time of original entry to 4.8% in 1924. The 80-acre class changed but little. There has been a marked increase in the 175- to 259-acre class, from 12.4% at the time of original entry to 21% in 1924. The next larger size group changed but very little.

However, the tendency with respect to the large holdings of 500 acres and over has been very different. The original entry record showed 26 holdings of 500 to 999 acres, comprising 9.8% of the total area. In 1924 this number was reduced to 6 and the area to 2.1% of the total. A still greater decrease occurred in the class comprising holdings of 1,000 acres and over. Nine such holdings were recorded in the original entry books, comprising 12% of the total area. In 1924 only 2 holdings of 1,000 acres and over remained, covering only 1.2% of the total area of the towns studied. It is significant that the two towns, Mazomanie in Dane County and Avon in Rock County, that have holdings of 1,000 acres or more are the least desirable of the eight towns studied, from the standpoint of agricultural production. In Mazomanie a considerable portion of the area is extremely rough, while light sandy soil prevails in Avon.

While the data for the individual towns vary slightly from the composite data in Table VI, the variations are surprisingly small considering the fact that the towns were selected with a view of securing samples of dissimilar localities in the two counties. The figures for the individual towns are found in condensed form in Table VIII.

It is very interesting to note the close correlation between landholdings and farms as shown in Table VII. We find more small holdings than small farms, as might be expected. This difference is easily accounted for by part-owner farms and by estates which have been divided among different heirs but continue to be operated as one unit. We also find a few more large holdings than large farms, which again is to be expected, as there are a few persons who own more than one farm. The correlation, however, is as close as any-

TABLE VI. HISTORICAL SIZE CLASSIFICATION OF LANDHOLDINGS, SHOWING THE NUMBER AND PERCENTAGE OF TOTAL AREA BY CLASSES IN EIGHT TOWNS IN DANE AND ROCK COUNTIES, WISCONSIN*

SIZE OF HOLDING	ORIGINAL ENTRY		1860		1873		1924	
	Number of Holdings	Percent of Area of Town	Number of Holdings	Percent of Area of Town	Number of Holdings	Percent of Area of Town	Number of Holdings	Percent of Area of Town
Under 20 acres	.....	.....	37	0.6	64	0.3	147	0.6
20–49 acres	498	11.2	184	10.0	294	5.8	246	4.8
50–99 acres	364	15.5	171	20.0	380	16.4	424	18.6
100–174 acres	305	25.1	189	37.8	446	34.3	508	39.3
175–259 acres	96	12.4	41	13.2	169	20.6	175	21.0
260–499 acres	73	14.0	28	14.7	85	15.9	66	12.4
500–999 acres	26	9.8	.....	.....	9	3.4	6	2.1
1,000 acres and over	9	12.0	1	3.5	2	3.3	2	1.2
Total	1,353	100.0	651	100.0	1,449	100.0	1,578	100.0

* The data in this table are for the towns of Mazomanie, Pleasant Springs, Primrose, and York in Dane County; and Avon, LaPrairie, Lima, and Plymouth in Rock County.

one could reasonably expect to find, and there is no indication of any tendency towards a concentration of ownership.

In both of the counties studied there is ample opportunity for large landholdings, for nearly a third of the farms are operated by tenants (see Table I). Rock County ranks second and Dane County fourth in the percentage of tenant-operated farms among the counties of Wisconsin. These areas form an old agricultural region where land values are high and tenancy high in comparison with the rest of the state, showing a very distinct tendency away from the concentration of landownership. There is every reason to believe that the data obtained are representative of the entire older agricultural region of the state. A complete classification of all landholdings would in all probability change the results but little and the conclusions not at all.

We may say, then, that the tendency is very distinctly away from land concentration. At the time of the original entry, nearly 22% of the area was held in holdings of 500 acres and over. The amount in such holdings decreased to 6.7% in 1873 and finally to 3.3% in 1924. Thus the acreage in large holdings is in insignificant portion of the total land area in farms.

III. Large Landholdings in Northern Wisconsin

Conditions of landownership in the three northern counties studied—Ashland, Rusk and Sawyer—are entirely different from those in southern Wisconsin. In the northern counties from a third to over one-half of the total land area is held in units of 500 acres and over (see Chart I and the accompanying table). From a tenth to a third of the land area is in farms of which approximately a quarter is in crops. In contrast we find that in the southern counties over 90% of the total area is in farms of which over one-half is crop land (see Table I).

TABLE VII. CLASSIFICATION AND NUMBER OF FARMS AND LANDHOLDINGS ACCORDING TO SIZE IN DANE AND ROCK COUNTIES, WISCONSIN

SIZE	DANE COUNTY		ROCK COUNTY	
	Farms*	Land-holdings†	Farms*	Land-holdings†
20–49 acres..	544	899	391	604
50–99 acres..	1,606	1,683	962	1,109
100–174 acres	2,458	2,185	1,360	1,237
175–259 acres	779	699	446	385
260–499 acres	213	348	153	196
500–999 acres	5	18	3	20
1000 acres and over.....	1	2	1	1
Total.....	5,606	5,834	3,316	3,554

* Data compiled from the *United States Census of Agriculture*, 1925.

† Data compiled from the 1924 town tax rolls.

We have already noted that while there are a few so-called large farms in the northern counties, there has been a decided decrease in their number during the five-year period, 1920 to 1925, and that the large farms listed as such are in reality not large farms at all but large holdings of cut-over land which technically may be classed as farms. In fact, most of the farms in northern Wisconsin are small; over two-thirds of the number of farms in the three counties fall in the 40- and 80-acre classes. Furthermore, the percentage of tenancy in this part of the state is very small, thus offering but little opportunity for concentration of ownership of rented land.

As soon as agricultural settlement is opened up, the large landholdings tend to disappear. This fact is clearly illustrated in Table VIII. Agricultural development in the town of Weirgor, Saw-

yer County, has been confined largely to the last ten years. In 1914, over 80% of the area of the town was held in units of 1,000 acres or more, while in 1924 less than 9% of the area was so held. Land settlement in the town of Stubbs, Rusk County, began over 25 years ago, and we note that large landholdings had been broken up even before 1901.[8]

As already stated, practically all the large landholdings in northern Wisconsin are cut-over or timber holdings. Chart I shows graphically the location as well as the extent of holdings of 500 acres and over in the three counties studied. A glance at the map will show that the area in large holdings is fairly well blocked, and a more careful study will show that the white areas of the map (holdings under 500 acres) are in most cases bisected by a railroad. Here the timber was first removed and agricultural settlement started and is gradually spreading out from the villages scattered along the railroads.

The largest holding is that of the Hines Lumber Company, of Park Falls, Wisconsin, which owns 175,000 acres of land in Sawyer and Ashland Counties, of which 125,000 acres are in Sawyer County. Over one-fourth of the area of Sawyer County is owned by three companies: the Hines Lumber Company, the American Immigration Company, and the Kaiser Lumber Company. In the three counties there were 27 holdings of 5,000 acres or more. The above facts show very clearly that concentration of landownership exists in northern Wisconsin to a considerable extent. We may ask, however, what the occasion is for these large holdings, and what significance they have.

For the most part, these large holdings are the aftermath of the lumber industry and are owned either by lumber companies, by holding companies directly or indirectly organized by the lumber companies for the purpose of disposing of the cut-over land, or by colonization or settlement companies which have purchased or taken options on large areas of cut-over land from the lumber companies. Lumbering is a large-scale enterprise, and during the period that the timber was being removed the land was owned by a relatively few lumber companies. In the case of nearly every one of the northern towns, the percentage of the area in holdings of 1,000 acres and over increased until after the timber had been removed (see Table VIII). In the area studied it is estimated that within four or five years practically the entire supply of virgin timber will be gone. Only a relatively small area of good virgin timber now remains. The cut-over land, which constitutes by far the larger portion of the area in large holdings, is for the most part going to waste. Very little constructive reforestation is being done, and fires destroy or greatly damage a large portion of the natural second growth of timber.[9]

[8] The following description of the towns in Table VIII may prove of value. Town 1 is about 85% timber land, while in town 2 over one-third of the area is classed as timber land. The entire area of towns 3 and 4 is cut-over, with no farms. Towns 5, 6, and 7 are partly in farms, but most of the land is in cut-over condition. Practically the entire area of towns 8 to 11 inclusive is in farms at present. The remaining towns, all in southern Wisconsin, were practically all in farms by 1860.

[9] According to figures published by the United States Forestry Service, the average annual damage to timber in the Lake States group, which includes Michigan, Minnesota, and Wisconsin, amounted to $4,170,835 for the nine-year period, 1916 to 1925. This figure, however, omits the intangible and indirect damage resulting from forest fires, such as that through decay of damaged timber, replacement of desirable species of trees by less desirable but more fire resistant ones, soil deterioration and erosion, losses of wild life, uncertain streamflow, interrupted tourist traffic.

Table VIII. Historical Classification of the Total Area of the Town by Size of Landholding*
Percentage of the Total Land Area of the Town in the Various Size Classes

Town and County	Original Entry					1901					1914					1924				
	Under 175 Acres	175 to 259 Acres	260 to 499 Acres	500 to 999 Acres	1000 Acres and Over	Under 175 Acres	175 to 259 Acres	260 to 499 Acres	500 to 999 Acres	1000 Acres and Over	Under 175 Acres	175 to 259 Acres	260 to 499 Acres	500 to 999 Acres	1000 Acres and Over	Under 175 Acres	175 to 259 Acres	260 to 499 Acres	500 to 999 Acres	1000 Acres and Over
(Northern Counties)†																				
1. T. 42, R. 3 (Ashland Co.)	9.0	2.3	7.4	12.8	68.5	2.5	1.5	13.7	9.5	72.8	2.2	1.2	5.1	10.5	81.0	2.2	.....	.....	6.1	91.7
2. Hawkins (So. ½) (Rusk Co.)	.....	.....	.....	.....	.....	5.9	7.3	9.2	15.1	62.5	7.1	1.3	5.2	4.1	82.3	4.3	1.3	3.2	.....	91.2
3. T. 37, R. 3 (Sawyer Co.)	9.2	6.5	4.4	25.9	54.0	3.8	.....	4.2	9.0	83.0	1.9	.....	4.7	3.9	89.5	0.6	.....	6.4	.....	93.0
4. T. 37, R. 5 (Sawyer Co.)	6.2	1.1	7.6	7.8	77.3	1.6	1.8	3.1	3.5	90.0	0.7	1.0	5.0	6.0	87.3	0.6	.....	.....	.....	99.4
5. Big Falls (Rusk Co.)	.....	.....	.....	.....	.....	2.3	4.2	7.8	3.0	82.7	1.5	3.0	5.1	5.4	85.0	24.5	3.7	1.6	7.9	62.3
6. Peeksville (Ashland Co.)	28.3	9.2	7.5	7.8	47.2	28.0	7.5	9.2	13.1	42.2	31.5	11.2	16.0	9.8	31.5	36.3	5.2	14.5	17.2	26.8
7. T. 39, R. 5 (Sawyer Co.)	2.8	.....	9.0	10.2	78.0	1.1	3.2	4.4	4.1	87.2	12.2	2.7	11.9	5.2	68.0	60.3	.....	1.5	.....	38.2
8. Weirgor (Sawyer Co.)	17.2	0.9	18.6	14.4	48.9	4.6	0.9	4.7	5.5	84.3	6.0	3.8	5.7	2.3	82.2	56.9	9.2	16.5	8.5	8.9
9. Ashland (Ashland Co.)	40.5	1.0	6.9	.....	51.6	27.7	6.2	2.1	9.8	54.2	59.9	9.5	5.3	3.4	21.9	74.0	6.0	3.9	2.3	13.8
10. White River (Ashland Co.)	30.6	3.7	3.2	5.6	56.9	29.8	2.4	7.5	8.7	51.6	47.7	10.0	5.4	11.1	25.8	72.5	8.4	8.8	10.3	.....
11. Stubbs (Rusk Co.)	.....	.....	.....	.....	.....	56.6	8.2	12.6	12.4	10.2	72.8	10.2	8.5	8.5	.....	81.1	9.2	7.2	2.5	.....
		Original Entry						1860‡					1873‡					1924		
(Southern Counties)																				
12. Mazomanie (Dane Co.)	53.8	17.0	13.0	3.2	13.0	.....	.....	.....	.....	.....	45.9	14.4	15.4	.....	24.3	39.5	26.8	24.0	3.7	6.0
13. Pleasant Springs (Dane Co.)	56.6	10.2	7.6	10.9	14.7	65.1	19.0	15.9	.....	.....	55.1	22.8	19.8	2.3	.....	83.5	10.1	6.4	.....	.....
14. Primrose (Dane Co.)	56.7	8.4	20.7	6.9	7.3	72.1	11.3	16.6	.....	.....	51.3	25.9	22.8	.....	.....	49.0	34.4	16.6	.....	.....
15. York (Dane Co.)	67.0	13.1	11.8	.....	8.1	.....	.....	.....	.....	.....	55.4	24.1	11.7	3.2	5.6	67.8	20.4	7.7	4.1	.....
16. Avon (Rock Co.)	51.6	8.4	11.0	17.0	12.0	.....	.....	.....	.....	.....	62.3	14.5	13.8	9.4	.....	59.3	17.7	13.7	4.7	4.6
17. LaPrairie (Rock Co.)	40.1	13.9	15.6	18.9	11.5	.....	.....	.....	.....	.....	53.6	23.6	22.8	.....	.....	64.0	15.0	18.5	2.5	.....
18. Lima (Rock Co.)	49.2	17.5	19.2	8.6	5.5	.....	.....	.....	.....	.....	59.1	24.3	10.3	6.3	.....	63.2	25.3	9.3	2.2	.....
19. Plymouth (Rock Co.)	40.3	10.5	12.9	12.1	24.2	68.3	9.6	11.7	.....	10.4	69.8	13.9	11.0	5.3	.....	77.6	18.2	4.2	.....	.....

* The data for this table were compiled from: (1) government records of original entry, (2) town tax rolls and (3) county plat books.

† See footnote 8.

‡ The data below are for towns having a much longer history than the towns listed above, and therefore different periods had to be selected in order to give a similar picture of the historical shift in the size of landholdings.

A very considerable area of northern Wisconsin land is being sold for taxes from year to year, and in some counties the delinquent tax situation is very serious indeed.[10]

What is the significance of large holdings in relation to the problems above referred to, especially in relation to the best utilization of the large areas of cut-over land in northern Wisconsin that now are going to waste? Some persons look primarily to agricultural settlement as a solution and claim that the large landowners stand in the way of such agricultural development by forcing the settlers to pay several times what the land is worth. Yet there is little reason to believe that any appreciable portion of this cut-over land will be needed for agricultural purposes in the near future. Therefore land settlement is bound to fall far short of being a solution for the proper utilization of the cut-over land in northern Wisconsin. But what about the prices asked for the land in large holdings? Are the large landowners holding the land off the market, and thus retarding agricultural development, by asking high prices or by refusing to sell?

Prices of Cut-Over Lands

While there is evidence to show that some of this land is held at a figure far above what it seems to be reasonably worth, much of it may be purchased at a very nominal figure—in many cases a figure far below what the land has cost the present owners in the form of interest and taxes. Let us examine some concrete illustrations.

In the fall of 1925 the Northern Realty Company of Milwaukee advertised rather extensively that it would sell at auction 4,000 acres of land in Rusk County. About one-fourth of the land offered for sale had been classified as A and B grade agricultural land by the Wisconsin Soil Survey. The land was fairly well scattered and a considerable portion of it was located in areas that are partly settled. Sales were held at two different places on two successive days. The minimum bid accepted was $8 an acre and the terms were: "Twenty-five per cent down, balance on land contract in four equal annual payments, interest at 6% payable semi-annually." Only two 40-acre tracts of the 4,000 acres were sold, at a price of $8.05 an acre. It was very evident that no one wanted the land. The tracts sold were assessed at over $15 an acre in the 1924 assessment roll.

According to F. Killinger, town clerk of Peeksville, Ashland County, the Mellen Lumber Company offered to pay for the recording of deeds of several tracts of land in the town if someone would only take them.

The American Immigration Company, a land sales company organized for the purpose of disposing of the cut-over land belonging to the Weyerhausers and other allied lumber interests, including at one time a large portion of the counties of Rusk, Sawyer, and Price, has sold a good deal of its land to land settlement companies and individuals at prices ranging from $5 to $10 an acre. The company sold several thousand acres of land in 1910, including considerable lake frontage and timber land, at an average price of $10 an acre. According to Mr. McClain, the company's agent in Hayward, Wisconsin, most of the land now belonging to the company may be purchased at

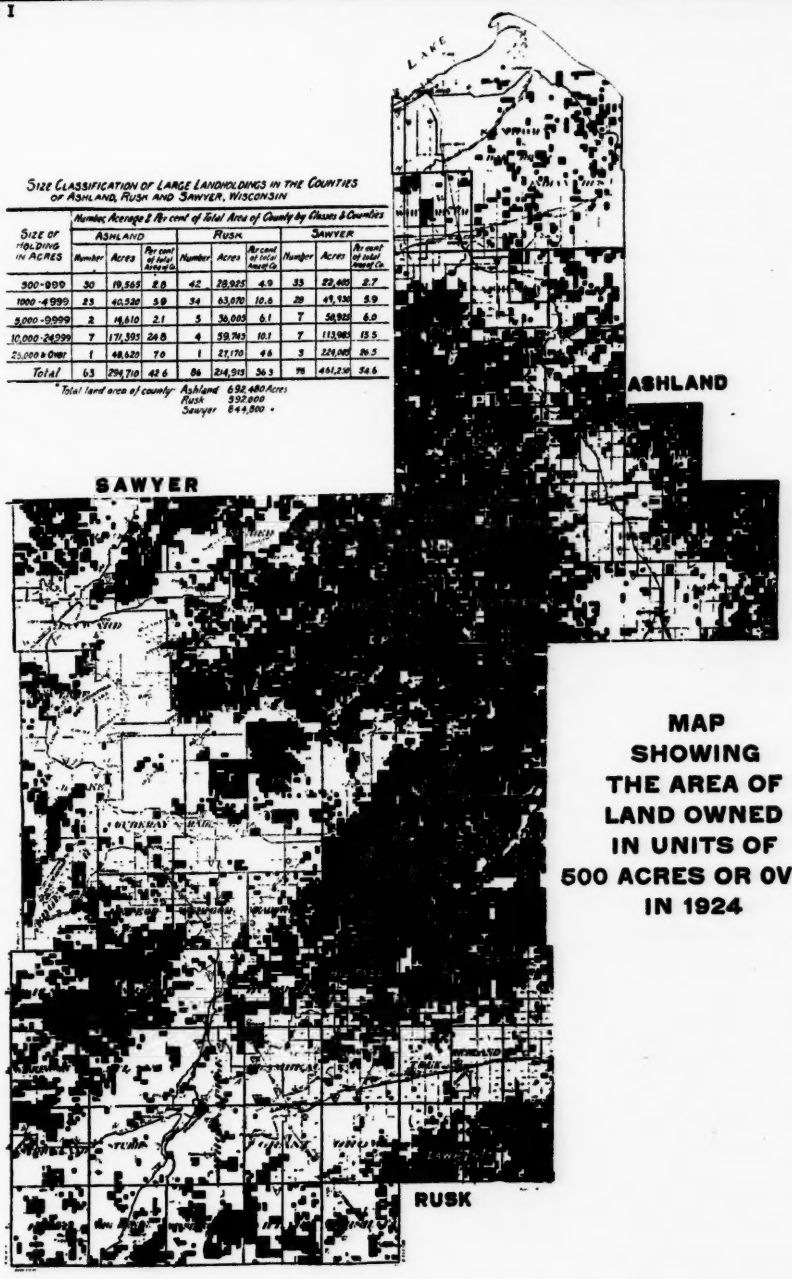
[10] In 1925 over 15% of the real estate taxes in Ashland County were delinquent, while in Rusk County over 30% of the real estate taxes were delinquent. The whole taxation problem in northern Wisconsin is the subject of a comprehensive study now in progress.

Chart I

SIZE CLASSIFICATION OF LARGE LANDHOLDINGS IN THE COUNTIES OF ASHLAND, RUSK AND SAWYER, WISCONSIN

SIZE OF HOLDING IN ACRES	Number; Acreage & Per cent of Total Area of County by Classes & Counties								
	ASHLAND			RUSK			SAWYER		
	Number	Acres	Per cent of total Area of Co.	Number	Acres	Per cent of total Area of Co.	Number	Acres	Per cent of total Area of Co.
500-999	30	19,565	2.8	42	28,925	4.9	33	22,405	2.7
1000-4999	23	40,520	5.9	34	63,070	10.6	28	49,930	5.9
5,000-9999	2	14,610	2.1	5	36,005	6.1	7	50,925	6.0
10,000-24,999	7	171,395	24.8	4	59,745	10.1	7	113,985	13.5
25,000 & Over	1	48,620	7.0	1	27,170	4.6	3	224,005	26.5
Total	63	294,710	42.6	86	214,915	36.3	78	461,230	54.6

* Total land area of county: Ashland 692,480 Acres; Rusk 592,000; Sawyer 844,800.



MAP SHOWING THE AREA OF LAND OWNED IN UNITS OF 500 ACRES OR OVER IN 1924

prices ranging from $4 to $12 an acre. This includes an area of nearly 100,000 acres in the counties studied, most of this tract being in Sawyer County.

However, despite the fact that a quantity of land far in excess of the demand may be had at a very nominal figure, a considerable amount of the land that is actually sold to settlers is changing hands at much higher prices than indicated above. Mr. McClain said that most of the land sold by the American Immigration Company to settlement companies was resold by them for several times the amount paid for it. This statement is borne out by several land settlement agents who declared that the average price paid by their settlers was about $40 an acre. This price only partly represents payment for the raw land. Included in the price is a payment for various services rendered by the settlement company to the settler, such as putting up buildings, extending credit, and various other forms of assistance. In some cases, however, the land settlement scheme is such that settlers, often city laboring men who have saved up a few hundred dollars, are attracted by misleading advertising and clever salesmanship into investing what little savings they have in cut-over farms. In a large number of cases such settlers find that they are unable to meet even the interest and tax payments; hence they soon move back to the city after having cleared a few acres. The process is then repeated, each succeeding settler usually paying a higher price for the land because of the increased clearing. In speaking of one of the colonization companies, a county agent stated that "it [the company] had three sets of settlers going on its land, one set on the land, one set going off, and a third coming on." In one settlement in Rusk County, one-half of the settlers' houses stood vacant in the fall of 1925. A few years ago a settlement company brought quite a large group of settlers, mostly from Chicago, into the town of Peeksville, Ashland County. At the present time most of these settlers have left, and no one has come to take their places. No doubt one element in the settlers' failure to make good is the large overhead resulting from paying too high prices for the land in the first place. The high prices paid, however, cannot be attributed to any land monopolization due to the prevalence of large landholdings. Much of the land in large holdings in northern Wisconsin can be purchased for less than it has actually cost the present owners in the form of interest and taxes. The reason that the land is in large holdings is that there is little or no market for it at any price.

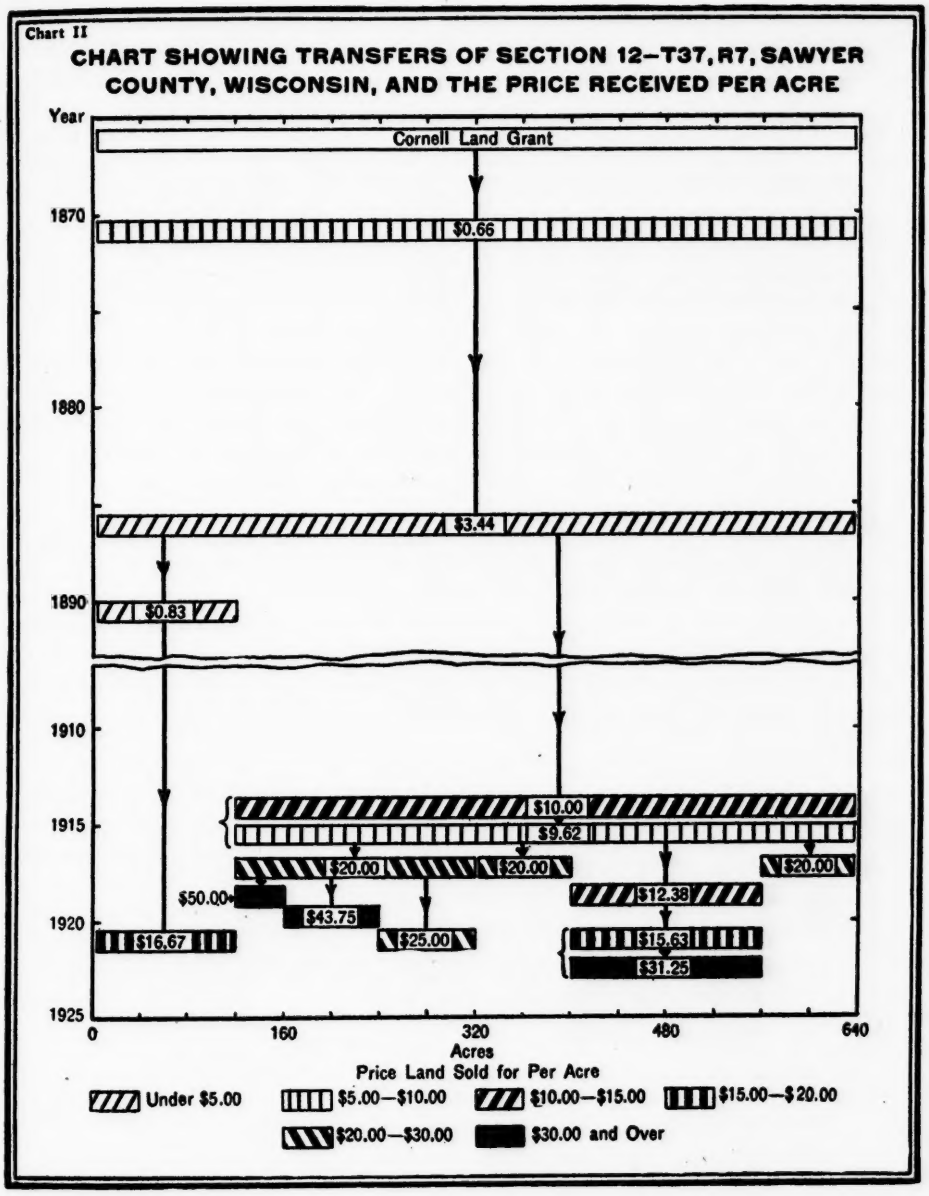
Chart II gives a historical picture of the trend in land values in a section of land in Northern Wisconsin.[11] The land was logged previous to 1914; therefore, the figures since 1914 represent prices paid for cut-over land sold for agricultural purposes. This section is all in farms at present, although but little of it is improved land as yet. The highest price paid for this land previous to 1915 was $10 an acre. Since then, many transfers have occurred at prices ranging from $12.38 to $50.00 an acre.[12]

Summary

In so far as land in farms is concerned, there is practically no concentration in landownership in Wisconsin. The land in large farms or in other large holdings of farm land is an ex-

[11] Section 12 in the town of Weirgor, Sawyer County.

[12] Data compiled from the Sawyer County Deeds Register.



tremely small portion of the total acreage of farm land in the state. The data show a trend toward greater diffusion in landownership instead of toward greater concentration.

On the other hand, we find that from a third to over one-half of the land area in the northern part of the state is owned in units of 500 acres or more. In the area studied, a large propor-

tion of the land so held is cut-over land and the remainder mostly timber land. Lumbering is a large-scale enterprise which favors concentration of timber ownership in the hands of large companies. To secure the timber, both land and timber were usually purchased and the large holdings of cut-over lands for the most part are a residue of lumbering operations. It is an entirely mistaken interpretation to suppose that the large holdings of cut-over lands in Wisconsin represent an effort partly to monopolize the land and reap large speculative gains in selling the land again to settlers. The land remains in large holdings because there is no sale for it; most of the lumber companies would gladly dispose of their cut-over land for less than it has cost them in taxes and interest. It is true that land has been sold and is being sold for prices much higher than would seem justified by the present or near future producing power of the land; but this is not peculiar to northern Wisconsin. The same can be said for California, Florida, and Iowa, or of urban land in almost any city. This is taking place not because land of just as good quality is not available at a very low price but because the settler is led to believe, rightly or wrongly, that he is making the best bargain, all things considered, by purchasing the higher-priced land. In other words, land prices are not enhanced by the fact that the land is held in large holdings but by advertising, salesmanship, and services rendered to the settler by land settlement companies or other real estate dealers.

The land problem in northern Wisconsin is not so much one of combating land speculation as it is a problem of land utilization. A large portion of the land area is going entirely to waste, representing a substantial social loss. Any solution of the problem calls for: (1) A scientific classification of the land, from an economic as well as physical standpoint; (2) Some plan of putting this classification into practice; this requires a constructive land policy having for its object the most advantageous utilization of the land from the social standpoint; (3) A modification of the system of taxation of timber lands so as to encourage rather than to discourage efficient and judicious utilization of the remaining virgin forest as well as to stimulate reforestation in so far as this can be done without granting "special privileges" in the true sense of the word.

DEPARTMENTS

The departments of the JOURNAL are edited specifically with regard to their interest to the readers who are especially concerned with the economic problems of land and public utilities. For the most part the material for the departments will be prepared by members of the staff of the Institute for Research in Land Economics and Public Utilities.

BOOK REVIEWS

This department contains critical reviews and brief notices of new books of interest to the readers of the JOURNAL.

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BOOK REVIEWS

Cabot, Philip, and Malott, Deane W. PROBLEMS IN PUBLIC UTILITY MANAGEMENT. *Chicago: A. W. Shaw Company, 1927. 624 pp. $5.*

Problems in Public Utility Management deals with the economic factors which govern the administration of utility enterprises. The sections on Marketing and Production alone would constitute a commendable case book in public utility economics. The economic point of view is adhered to throughout, and no consideration is given to technical matters of operation. Comments on the cases have been included in only rare instances; the authors refraining from "encumbering" the book with commentaries of their own. Each section is, however, prefaced by a statement of the main issues and principles which the cases in the section present.

The first section serves the useful purpose of defining a public utility. From the standpoint of an "operator," this material does not pertain strictly to management, but belongs rather in the field of regulation. Nevertheless, the section offers an interesting background which contributes to an intelligent understanding of the differences between public utilities and other industries. As the cases illustrate, the factors which make an industry a public utility are neither legal nor governmental, but economic. Regulation is resorted to in those industries where competition does not exist, or has broken down, or where the duplication of large amounts of fixed capital with slow turnover constitutes a social waste.

Section 2, on Valuation, Depreciation, and Fair Return, contains cases involving court and commission decisions. These decisions emphasize the cost of reproduction new in arriving at valuation. In addition, the regulatory bodies now are regarding depreciation as a question of fact to be determined at any particular time by inspection, and not a question of estimated life as reflected by the book account of depreciation reserve.

In these two sections the authors have performed the helpful task of presenting compactly the outstanding cases of the courts and commissions, together with their decisions. In the subsequent sections the authors have performed a more substantial task than that of compilation. They have presented material which has not heretofore been available. Here is the best case material yet published which focuses attention on the peculiar marketing, production, public relations, and finance problems of public utilities.

In the consideration given to marketing, the authors have met with special emphasis the really pressing problems in the utility field—improving the load factor and increasing the volume of business. Wholesale rates are shown to be strictly competitive, and consequently the rate base is of negligible worth in fixing these rates. The upper limit of a wholesale rate is the price at which the same service could be furnished either by the customer himself or by another utility; the lower limit is the marginal cost of production. Attention is also given to the limited obligation of a utility company to continue to supply off-peak service to all applicants and for a long period.

In the domestic service field, the authors hold that commission regulation in effect establishes collective bargaining between the utilities and their

respective customers with the result that a free competitive price exists. In this section the cases selected deal with house heating rates and the revision of domestic rates to make them conform more accurately to the cost of serving each particular class of customers within a specified consumption range. The methods of selling appliances are also presented.

The Cliffer Gas case and the Cambridge Gas Light case are excellent illustrations of the rate problems of a great many medium-sized utilities throughout the country. The circumstances which are "true to form" are: (1) the actual rate of return earned is greater than the regulatory body will allow, thereby necessitating a rate reduction; (2) the company is supplying service at a loss to a small group of customers with low consumption; and (3) a practically flat rate is in effect which does not induce further consumption on the part of domestic customers.

Consideration is also given in this section to aspects of rate-making for the telephone utility. The essential economic difference between the telephone and other utility businesses is pointed out; namely, that the telephone utility has always had a rising cost curve, whereas the light and power business and the gas business have declining cost curves up to very large-size installations.

In the section on Production the authors raise the specific question as to what is the most economical size for a public utility unit. At what point does the cost curve flatten out and then proceed upward? Is the cost of distribution the limiting factor? Appropriate cases bring out these issues for independent plants, and other cases illustrate the influence of interconnection on unit costs.

The fifth section devoted to Public Relations problems merely emphasizes their importance and the difficulty with which they are solved. The authors raise the question as to what is an ethical relationship for a utility management to have with public officials. Also programs of advertising, publicity, and service which make for good-will are presented in the cases.

In the section on Finance, the authors seem to be influenced by the conservative New England financial policies. Little consideration in the preface or the cases is given to a financial structure regarded in many quarters as the *optimum* for a public utility. The proportion of 50% bonds, 25% preferred stock, and 25% common stock is a financial policy of several of the large holding companies. If, with this proportion of bonds and stocks, interest and dividend requirements are earned approximately 2½ times, a sound financial structure is believed to exist. The authors comment that common stock or other junior securities should be issued when they are marketable, and a senior mortgage bond, conservatively restricted, should be held in reserve for emergency use. The limiting factor to this point of view is the consideration that long-time senior securities should be sold at the time of high bond prices and cheap money. With half of the capital supplied by bonds, the way would still be open for emergency financing through short-term securities. The whole problem of financial structure is, of course, one of delicate balance.

The cases concerning customer and employee ownership and the comments of the authors emphasize the experimental nature of this source of funds. It is true that since these forms of financing came in vogue, the utilities have not had a depression and low

earnings with dissatisfied customer- or employee-investors. Yet if the attitudes of the industry and these investors are interpreted correctly, there can be little doubt as to the advantages and permanence of this type of financing.

The volume, therefore, presents available material in a convenient form on the subjects of the characteristics of a public utility, and valuation, depreciation, and fair return. In the fields of marketing, production, and public relations the book cannot be too highly commended, as the material is original and well selected. The section on Finance presents the essential issues which govern the selection of mortgage bonds, notes, preferred stock, and common stock.

With this original and effective case material dealing with the important problems of public utility administration, the book is of value to students in the field and also to those who bear the responsibilities of management.

HENRY P. BRUNER

Thomas, Edgar. THE ECONOMICS OF SMALL HOLDINGS. *Cambridge: Cambridge University Press,* 1927. Pp. 132.

The small holdings of England have been given much consideration because of the possibility of increased production per acre and of their becoming an outlet for the employment of more people. Very little concrete evidence, however, upon the benefits and the hardships experienced by small holders seems to be available. This study was planned in order to help supply facts with reference to these holdings. The county of Carmarthen, the largest of the Welsh counties, was taken for the study.

Approximately two-thirds of all holdings of the county are less than 50 acres in size and over 53% of them are between 5 and 50 acres. These small holdings represent one-fourth of the total acreage of holdings in the county.

The topography of the county necessitated a classification into "Highland" and "Lowland" holdings. The soil of the highland holdings is slightly inferior to that of the lowlands. An attempt was made to equalize the effect of the different qualities of land by considering 25 acres of lowland equivalent to 30 acres of highland.

A small holding is defined as a unit that "will just keep the occupier fully employed and will provide him with the wherewithal for the sustenance of himself and his family." The upper limit has been "fixed at 50 acres or £50 rent." In no case is there need to "employ wage labor" or is there "division between manual labor and the work of organization." The outstanding factors of the Carmarthen County small holding study are:

1. Small percentage of arable land. The highland farms have less than 14% arable land while the lowland farms have between 6% and 7% arable. Grazing occupies nearly 66% of the land in each group, while the remaining 20% to 30% of the area is kept for hay.

2. Predominance of the cow herd in the organization. Cattle constitute over 70% of the "animal units" kept. Horses are second in importance and represent 18%. Pigs and poultry do not aggregate more than 10% to 12% of the total animal units.

3. Cash crops, such as potatoes, hay, swedes, turnips, and cabbage, account for less than 1% of the gross sales per farm. Cattle and dairy products account for nearly 60% of the gross sales, with poultry and sheep ranking second. On the highland holdings, sheep sales comprise one-fifth of the total and are more

important than poultry, while the converse is true of the lowland holdings. The custom of highland small holders to share common pasture on the mountains with larger farmers helps to account for the greater popularity of sheep on these holdings.

4. Gross income per holding is less than the gross expenses in every size group of both highland and lowland holdings, with the exception of that of those farmers who sell milk. The two most important items of costs are family labor and feed. The family labor item does not represent a cash outlay and constitutes one-third to one-half the total farm cost. When family labor is credited with the minimum wages of general laborers, 28 shillings a week, the farm shows a loss. This means that the family is receiving less than usual wages for operating the small holding. The purchase of feeds for hogs and poultry represents about two-fifths of all cash outlay. It is an important item because the crop land does not produce enough to maintain all live stock on the holdings.

5. The type of farm organization found on the ordinary small farm is not adapted to the small holdings. The occupiers would receive increased income if they followed other systems than those adapted to larger holdings. "It seems that the great problem in the development of the native type of small holding. . . is the need for evolving some system or systems of cultivation and live stock production especially suitable for small-scale organization."

6. The author seeks to express the effectiveness of small holdings operation in terms of living standards and returns to the occupier rather than in returns per acre of land used. "The continual toiling of the small holder, his wife, and his family is possibly the most serious aspect of the small holdings problem, since there is reason to fear that in the struggle for bare existence, the instinct as well as the opportunity for real home making is too often lost, and the opportunities for leisure reduced to a minimum."

This book will be of interest to American readers who wish either to learn of, or to make comparisons between, small farm practices in the United States and in Wales. The types of organizations are discussed in detail. A financial statement of 93 farms shows all receipts and expenses. It also includes the value of produce supplied the family from the farm and works out the net cash income as well as the net profits or losses of the holdings. Fairly satisfactory comparisons of incomes, expenditures, and organization of the small farms of the United States and Wales are thus made possible, but in making such comparisons the different American conditions and customs should be kept in mind.

P. E. McNall

BOOK NOTICES

Chase, Stuart. THE TRAGEDY OF WASTE. *New York: The Macmillan Company, 1925. 296 pp. $2.50.*

The author does not give an exact definition of waste; he says it is "out of the question." However, he favors the engineer's definition, "any bar to maximum use value of output at minimum cost in energy and materials" (p. 16). After analyzing human wants, he discusses wastes in consumption which he calls "ilth," and among these he emphasizes military establishments, narcotics, vice, crime, speculation, and super-luxuries. He estimates a waste of 8 million man-power in this field. He adds advertising as the "big brother of most forms of ilth" (p. 108), but he acknowledges a legitimate use for about 10% of its present volume (p. 113).

A second form of waste he finds in idle man-power, estimating a minimum of 6 million workers idle on any given working day. Wastes in production and lack of industrial coordination cause a loss of 4 million man-power and wastes in distribution another 2½ million. The last part of the book is devoted to the waste of natural resources both in their extraction and utilization. The author concludes that 20½ million, or about half of our total man-power, is wasted (p. 270).

All his statements are substantiated by figures from authentic sources and he presents his case in a striking manner. He has no solutions to offer, but calls attention to the control during the war and to cooperative, labor, and conservation movements.

GEORGE S. WEHRWEIN

Griffith, Ernest S. THE MODERN DEVELOPMENT OF CITY GOVERNMENT IN THE UNITED KINGDOM AND THE UNITED STATES. *Oxford University Press, 1927. 2 vols., pp. 745.*

Careful comparative analysis of political institutions is rare. Efforts in this direction too often expend themselves in futile eulogy or vapid generalizations. They have in the past, moreover, been content either to describe similarities and differences or to speculate upon causes and teleologies. These volumes, by an Oxford-trained American who has for some years been a public administrator in Liverpool, are therefore a welcome relief. Upon a very readable and interpretative summary of the history of the city in the United States and in England, the author has presented a delightful and stimulating analysis of those major problems of modern municipal government—framework, function, finance, and central relations—which are found in both countries and for the solution of which the experience of one may aid the other. The analysis is delightful because it is based upon an intelligent use of numerous and variegated source-material—from the *Manchester Abstract of Accounts* to *Babbitt*. It is stimulating because of the frequent integration of elements—such as city-planning and municipal tax-systems—too often forced apart by the more orthodox departmentalized descriptive method of treatment. The author, furthermore, never fails to drive home the lesson to be drawn from the comparison of English and American practice.

From this evaluated comparison, which emphasizes the social and economic factors, emerge definite conclusions and specific recommendations. In the author's opinion, England's most valuable lessons for America are "the spirit of public service" and "respect for law"; while from America England should learn the values of a tax on the capital value of land and of local self-government. Thus, he concludes: "The situation in British cities appears more complex and difficult to remedy than do the evils of American cities. In reality, it will probably prove to be otherwise. The cities need only their *freedom* to consummate their own remedy; while in America the chief difficulties are psychological, and have consequences and ramifications beyond the cities alone. Human nature must itself be changed, so that it will regard city government in the spirit of Colonial days and in the spirit which the English city has never lost—the spirit of mutual respect of the electors and the elected for each other" (p. 631).

The volumes contain a full and classified bibliography, and a number of instructive statistical appendices. They deserve the close attention of everyone interested in the problems of urban government on both sides of the Atlantic.

ALLAN F. SAUNDERS

SUMMARIES OF RESEARCH

THE ASSESSMENT OF REAL ESTATE FOR TAXATION IN CHICAGO

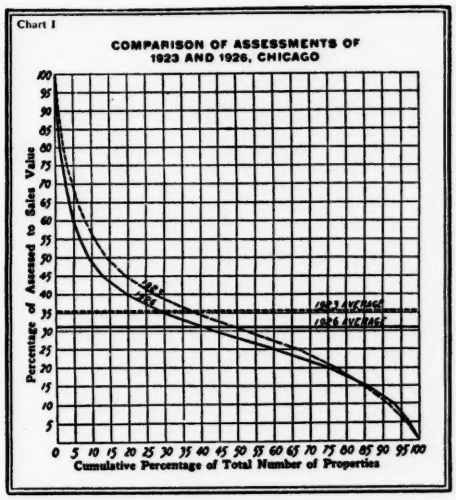
MARKED inequalities of assessment are shown in a preliminary report[1] dealing with one phase of the Institute's study of the real estate tax assessment problem in Chicago. An analysis of over 6,000 properties revealed that the average rate of assessment in 1923 was 35.4% of actual value. Approximately 10% of the properties were assessed at more than 56% of actual value, while nearly a fourth of the properties were assessed at 20%, or less, of actual value. Similar proportions were found for the 1926 assessment, the average rate for all properties investigated being 31.3%. Comparisons have also been made on other bases.

TABLE I. DISTRIBUTION OF PERCENTAGES OF ASSESSED TO SALES VALUE OF ALL PROPERTIES STUDIED

(Initial Quadrennial Assessment, 1923)

Percentages of Assessed to Sales Value	Number of Properties Assessed at Each Indicated Percentage	Percentage of Total Number of Properties	Total Value of Properties Represented	Percentage of Total Value
1 to 5	197	3.6	$ 10,485,100	5.7
6 to 10	277	5.1	8,055,800	4.4
11 to 15	358	6.6	10,978,400	6.0
16 to 20	414	7.6	13,004,800	7.1
21 to 25	573	10.6	18,614,900	10.2
26 to 30	758	14.0	20,281,100	11.1
31 to 35	748	13.8	20,644,100	11.6
36 to 40	614	11.3	19,899,600	10.9
41 to 45	415	7.7	15,464,300	8.4
46 to 50	291	5.4	13,040,700	7.1
51 to 55	187	3.5	6,324,100	3.4
56 to 60	144	2.7	4,693,700	2.6
61 to 65	109	2.0	3,922,800	2.1
66 to 70	79	1.4	5,393,900	2.9
71 to 75	69	1.3	2,931,800	1.5
76 to 80	52	.9	2,656,600	1.3
81 to 85	43	.8	2,279,300	1.2
86 to 90	34	.6	978,400	.5
91 to 95	28	.5	1,660,700	.9
96 to 100	26	.5	1,132,500	.6
101 and over	5	.1	874,500	.5
Total	5,421	100.0	$183,317,100	100.0

Chart I


COMPARISON OF ASSESSMENTS OF 1923 AND 1926, CHICAGO
Percentage of Assessed to Sales Value
Cumulative Percentage of Total Number of Properties
1923 AVERAGE
1926 AVERAGE

This inquiry, begun last year, was divided into four general subjects: (1) Constitutional and legislative provisions governing the present assessment of real estate in Chicago; (2) the actual results of the present system of assessment; (3) a comparative study of the methods of assessment in other cities that have made conspicuous improvement in recent years in their methods of assessment; (4) any practical suggestions that can be made for the improvement of real estate assessments in Chicago. The preliminary report deals only with the second subject. It has been published in advance of the complete report because of immediate interest in the quadrennial reassessment now being made by the Board of Assessors.

[1] This preliminary report has been printed by the Institute in pamphlet form.

TABLE II. AVERAGE PERCENTAGE OF ASSESSED TO SALES VALUE, BY TYPES OF PROPERTY, 1926

Types of Property Arranged in Order of Percentage of Assessed to Sales Value	Number of Properties	Value of Property Represented	Percentage of Assessed to Sales Value
1 Office and bank buildings	26	$ 4,071,700	53.4
2 Industrial	138	14,178,800	38.1
3 Retail and wholesale	488	22,267,200	36.3
4 Apartment buildings	1,648	82,168,500	32.3
5 Hotels, theatres, amusements	35	9,031,300	31.2
6 Miscellaneous	284	9,990,300	30.9
7 Combined business and residence	585	22,187,700	29.5
8 Duplex or two-flat	857	14,031,300	29.4
9 Single-family residences	1,327	22,023,000	27.7
10 Vacant land	717	18,739,100	19.7
Total	6,105	$218,688,900	31.3

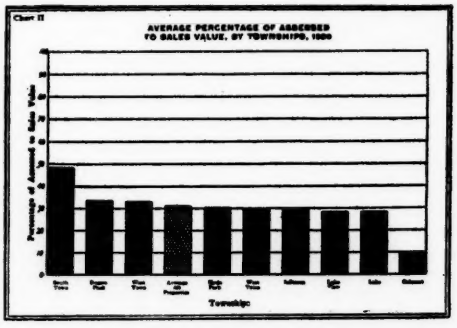
The general method in measuring the results of the present system of assessment was, briefly, as follows: The sales value involved in actual transfers of property was adopted as the sole measure of value. Since Chicago has the quadrennial system of assessment, a period exactly in the middle of the quadrennium just closing—namely, the latter part of 1924 and early part of 1925—was selected as the period from which to draw the records of transfers. All properties in Chicago transferred during that period were investigated.

Sale values were ascertained through the revenue stamps required at that time, through the record of encumbrances upon the properties at the time of transfer, and through correspondence and interviews with buyers and sellers. Any doubts about the correctness or identity of the legal descriptions involved in the transfer and the assessment record, or about the improvements on properties at the time of assessment were removed by physical inspection of a large number of properties all over the city. Wherever uncertainties could not be removed by this method or by reference to the Sanborne Insurance Maps or to the records of building permits in the building inspector's offices, the properties were eliminated from the study. After all eliminations for incomplete or erroneous data, 6,450 properties remained, and the results of this study are based on these properties.

Table I indicates the actual distribution of assessments under the quadrennial assessment made by the Board of Assessors in 1923. "Assessed value" means the figure placed by the Board of Assessors or Board of Review as representing the *full cash value* of the property, 50% of which is then taken for purposes of taxation. In other words, the values upon which taxes are actually paid are in turn 50% of the "assessed value" shown in this table. A similar tabulation for the 1926 assessment and the data in Table I are graphically compared on Chart I.

Of the several tables and charts showing the general rates of assessment by townships, districts, and types of property, two have been selected for this summary to illustrate the nature of the findings. Table II gives the average percentage of assessed to sales value, in 1926, by types of property. It is interesting to note the relatively high ratios in the case of office and bank buildings and the correspondingly low ratios in the case of vacant land. Chart II indicates the variations of assessment ratios by townships.

Further analysis is now being made



of the distribution of assessments *within* each of these townships, districts, types of property, and other classifications, which, it is believed, will throw much light on the inequalities of assessment.

HERBERT D. SIMPSON

PUBLIC UTILITY FINANCING DURING THE FIRST QUARTER OF 1927

ANALYSIS of new capital flotations indicates that the volume of public utility security issues is still increasing. Thus, the monthly records of the *Commercial and Financial Chronicle* indicate that during the first three months of 1927 new public utility security issues had a total par value of $872,071,340. Reference to Table I shows that this is the largest volume of public utility securities offered during any quarter of any year. The index numbers of the volume of public utility financing for the months of January and February of the current year are likewise considerably higher than the index number reported for any other single month. While the index dropped to 158 in March, it is still well above the average for the months recorded.

A classification of public utility securities according to the type of utility issuing them shows that the gas industry had the greatest relative increase in the volume of its financing. During January, February, and March of the current year the securities of the gas utility recorded had a total par value of $204,167,266, amounting to 23.4% of the par value of all public utility security issues. During the year 1926 this group of security issues represented

TABLE I. INDEX NUMBER OF VOLUME OF PUBLIC UTILITY FINANCING, 1919-1927*

	1919	1920	1921	1922	1923	1924	1925	1926	1927
By Months									
January	100	67	55	46	122	112	199	173	259
February	48	28	25	47	66	89	172	125	314
March	25	27	25	43	94	78	144	115	158
April	5	38	25	50	64	112	69	182	.....
May	15	38	35	150	66	233	103	230	.....
June	26	20	9	96	92	122	118	181	.....
July	41	25	115	44	21	104	90	177	.....
August	20	11	33	22	40	62	93	58	.....
September	54	44	34	147	34	77	110	38	.....
October	24	33	33	77	59	112	92	123	.....
November	8	21	119	43	161	69	102	136	.....
December	20	63	53	54	135	111	153	114	.....
By Quarters									
1st Quarter	100	71	61	80	164	162	299	240	424
2nd Quarter	27	56	41	172	129	271	168	344	.....
3rd Quarter	67	47	105	123	55	141	170	159	.....
4th Quarter	30	68	119	101	206	169	201	217	.....
By Years	100	107	145	212	246	330	373	427	.....

* Volume for January, 1919, First Quarter, 1919, and Year 1919, used as basis for computing index numbers for months, quarters, and years respectively. Compiled from the monthly record of new capital flotations of the *Commercial and Financial Chronicle*.

only 3.4% of the total volume of new public utility security issues.

Those utilities engaged in purely electric service and those rendering both gas and electric service maintained their normal proportion of public utility financing. In the first quarter of 1927 the purely electric utilities issued 30% of the total volume of utility securities while the companies rendering both gas and electric service issued 32% of the total.

More than 50% ($110,300,000) of the total par value of gas utility securities were issues of preferred stock. This $110,300,000 worth of preferred stock issued by the gas utility represented 62.3% of the par value of all public utility preferred stock issues offered during the first quarter of 1927.

All corporate financing of record for the first quarter of the current year amounted $1,890,056,870. Public utility financing represented a large proportion (46.13%) of this total. In only one quarter of 1926 was the ratio of public utility financing to total corporate financing higher than 46.13%; in the second quarter of that year public utility financing represented 51.7% of the total. Public utility financing accounted for only 37.26% of all corporate financing during the year 1926.

All securities of all maturities issued by public utilities sold during the first quarter of 1927 at a price to yield the investor 5.43% on the dollar and 5.71% on the issue. This yield is somewhat higher than that recorded for the last quarter of 1926, when public utility securities of all maturities sold at a price to yield 5.36% on the dollar and 5.68% on the issue. Further examination of the single issues shows that two second mortgage bond issues, with a total par value of $16,000,000, sold at prices to yield to the investor the unusually high returns of 7.3% and 7.4% while one first mortgage issue with a par value of $3,500,000 yielded as much as 7.0%. A few issues with an unusually high yield will, of course, materially affect the average yield for a single quarter. It is to be noted, however, that the yield for the first quarter of 1927 is still below that for the year 1926, 5.43% on

TABLE II. WEIGHTED AND SIMPLE AVERAGE YIELD AT OFFERING PRICE OF NEW PUBLIC UTILITY SECURITY ISSUES

YEAR	ALL TYPES OF SECURITIES						BONDS AND NOTES	
	All Maturities		Long Term		Short Term			
	Weighted Average Yield	Simple Average Yield	Weighted Average Yield	Simple Average Yield	Weighted Average Yield	Simple Average Yield	Weighted Average Yield	Simple Average Yield
1919	6.55	6.68	6.21	6.25	6.78	7.03	6.54	6.67
1920	7.55	7.64	7.52	7.59	7.59	7.68	7.53	7.62
1921	7.13	7.47	7.11	7.42	7.27	7.66	7.11	7.45
1922	6.06	6.34	6.03	6.32	6.39	6.53	6.03	6.34
1923	6.04	6.31	5.99	6.26	6.73	6.72	6.11	6.29
1924	6.03	6.14	6.04	6.16	5.97	6.04	5.98	6.12
1925	5.58	5.81	5.66	5.83	5.55	5.86	5.56	5.78
1926	5.53	5.72	5.52	5.70	5.77	5.82	5.44	5.66
1st Quarter, 1927	5.43	5.71	5.42	5.71	5.70	5.73	5.33	5.66
2nd Quarter								
3rd Quarter								
4th Quarter								

the dollar and 5.71% on the issue as compared with an average yield of 5.53% on the dollar and 5.72% on the issue for the year 1926 (see Table II).

During the first quarter of 1927 long-term securities sold at a price to bring the investor a return of 5.42% on the dollar and 5.71% on the issue. Comparable figures for the last quarter of 1926 were 5.32% and 5.61% and for the year 1926 were 5.52% and 5.70%. Short-term securities during the first three months of the current year yielded a return of 5.70% on the dollar and 5.73% on the issue. During the fourth quarter of 1926 short-term securities yielded 5.79% on the dollar and 6.01% on the issue, and during the year 1926 these securities yielded 5.77% on the dollar and 5.82% on the issue. Bonds and notes only brought a return to the investor of 5.33% on the dollar and 5.66% on the issue during the first quarter of 1927. Comparable figures for the fourth quarter of 1926 were 5.30% on the dollar and 5.62% on the issue, while for the year 1926 they were 5.44% on the dollar and 5.66% on the issue.

MARION C. RICHTER

COMMENTS ON LEGISLATION AND COURT DECISIONS

RECAPTURE OF WATER POWERS IN WISCONSIN

In Wisconsin, at least, it is now definitely settled that the state may, if it wishes, recapture its water powers. In *Fox River Paper Company* v. *Railroad Commission*[1] the United States Supreme Court upheld the Wisconsin courts in the ruling that the recapture clause of the Wisconsin statutes is constitutional.

Section 31.02, Wisconsin Statutes, 1925, gives the state Railroad Commission jurisdiction over the navigable waters of the state and over the construction and operation of dams in navigable rivers. Section 31.07 further provides that permits to operate and maintain existing dams must be secured from the Railroad Commission.

With the application for a permit to construct and operate a dam for the purpose of developing power, the applicant is required to file certain proposals in writing, agreeing, among other things, to the following condition (Section 31.09):

That the permits, if granted, shall be granted and accepted subject to the express condition that the State of Wisconsin, if it shall have the constitutional power, or any municipality, on not less than one year's notice, at any time after expiration of 30 years after the permit becomes effective, may acquire all the property of the grantee, used and useful under the permit, by paying therefor the cost of reproduction in their then existing condition of all dams, works, buildings, or other structures or equipment, used and useful under the permit, as determined by the commission, and by paying in addition thereto the value of the dam site and all flowage rights and other property as determined by the commission prior to the time the permit was granted, as provided in subsection (1), plus the amounts paid out for additional flowage rights, if any, acquired after the valuation made by the commission as provided in subsection (1); and that the applicant waives all right to further compensation.

The Fox River Paper Company and others, the plaintiffs in the case, are riparian owners of lands on the Fox River. They applied to the Railroad Commission for a permit to rebuild their dam at Appleton, Wisconsin, which was built in 1878 and since maintained without any permission from the state. The application set forth all the required facts save that the proposal relating to recapture was omitted. The commission rejected the application on that account, alleging lack of jurisdiction. The applicants brought suit to compel the commission to take jurisdiction in the case.[2]

The paper company based its case on the contention that the law of Wisconsin accords to riparian owners the right to use the water power and to dam the river, subject only to the usual reservation that the state may use its police power to regulate the use of navigable waters in the public interest,

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[1] 47 Sup. ct. 669 (1927).

[2] See the proceedings in the Wisconsin Supreme Court, 189 Wis. 626, 208 N. W. 266 (1926).

and to protect health and safety. If it is allowed the use of its property only on condition that it agrees to surrender the property to the state at a price which may prove less than the real value, its property is being taken without due process of law.

As defined by the state courts, the rights of riparian owners are subject to the state control over navigable waters, and this control extends to the use of the waters of navigable streams. The rights of the riparian owner to build dams and develop water powers are inchoate until the state has given its consent. The water power is not created until there is a combination of riparian ownership and state grant; prior to this there is no such thing as property in water power.

The trial court reasoned that, since the legislature may wholly refuse permission to erect a dam or other structure in the navigable waters of the state, it follows that it may grant permission on such terms as will best protect the interests of the public. A dam constructed without state sanction may be abated as a nuisance. The state might allow the dam to stand for 30 years and then require the riparian owner to remove the structure altogether. Instead, it secures repayment to him of a sum equal to the reproduction cost of the dam and other equipment, and to the value of the dam site and flowage rights and other property prior to the issuance of the permit.

The United States Supreme Court held that, in the absence of an attempt to evade the constitutional issue, the state court may define rights in lands located within the state. Accepting the trial court's ruling that no property right exists, there can be no violation of the Fourteenth Amendment.

Although the constitutional question of what the state may do in exercising its proprietary powers was uppermost in the proceedings before the United States Supreme Court, it is also interesting to observe that the statute embodies two different measures of value for recapture purposes. The dam site, flowage rights, and other property acquired before the issuance of the permit were to be valued as of the date of granting the permit; but improvements made by the riparian owners since that date were to be valued according to the cost of reproducing these properties at the time of recapture. Obviously, the purpose of this provision was to keep for the state the increased value of the dam site and flowage rights resulting from development during the term of the license. This seems an entirely reasonable provision in view of the state's proprietary interest in navigable waters.

But suppose the statute had required valuation of the owners' subsequent improvements on the historical cost basis, that is, according to the amounts of capital prudently invested from time to time in developing the plant. One wonders, then, whether the statute would have survived the scrutiny of the Federal Supreme Court in the light of the Indianapolis Water Company case. Also, would riparian owners have accepted licenses on this condition?

This supposititious case is not without practical significance or a parallel. The Federal Water Power Act of 1920 provides that the United States may at the end of 50 years recapture any water power developed under federal license by paying, roughly, the prudent investment cost. Licensees have accepted this recapture provision, perhaps because they cannot tell whether investment cost or reproduction cost will be higher 50 years later. If this investment figure

turned out to be lower than the value according to reproduction cost 50 years later, an interesting constitutional question would probably be presented, just as, at present, many utilities seem to be striving for the adoption of the higher of the two bases. However, an authoritative answer to this constitutional problem must await the United States Supreme Court's disposition of a case in which this issue is squarely joined.

F. A. STATEN